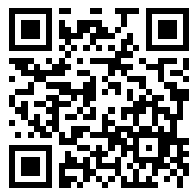
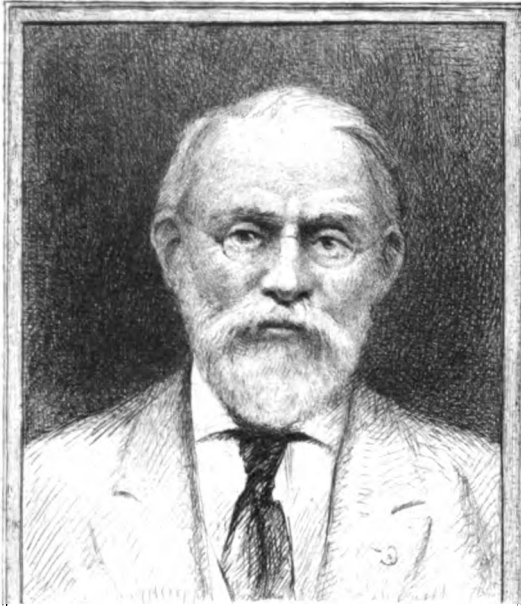

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The

JOURNAL

of the

UNITED SERVICE

INSTITUTION

of INDIA

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Correspondence.

Reviews.

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United Service Institution of India.

RULES OF MEMBERSHIP.

ALL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Auxiliary Force, India, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—

Rupees 120 + entrance fee (Rs. 10) = Rs. 130.

Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 10, to be paid in advance. The period of subscription commences on 1st January.

Subscribing members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

Life members receive the Journal of the Institution post free anywhere, but ordinary members only in India. All members may obtain books from the library on paying V.-P. postage.

Honorary Members shall be entitled to attend the lectures and debates, and to use the premises and Library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 10, *in advance*, will be required.

Divisional, Brigade and Officers' Libraries, Regimental Messes, Clubs, and other subscribers for the Journal, shall pay Rs. 10 per annum.

Sergeants' Messes and Regimental Libraries, Reading and Recreation Rooms shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 10.

If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and not been returned by the post.

Members or Subscribers to the Journal, intimating a wish to have their Journals posted to any address out of India, shall pay in advance Rupee 1 per annum, to cover foreign postage charges, but Life Members who have left India shall not be liable for foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. I., Vol. II., para. 201, and King's Regulations, para. 509.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published.

Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

MILITARY WIDOWS' FUND,

— BRITISH SERVICE —

THIS FUND enables a British Service (Army) officer, by subscribing from Rs. 6 to Rs. 10 per quarter, to assure, in the event of his death while on the Indian Establishment, immediate payment:—

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Payments are made immediately on receipt of report of death, irrespective of death occurring in or out of India.

The sum paid to the widow varies with subscription and the sum for each child varies with age of child. Subscriptions are based on the rank of the officer.

Benefits are payable whether the deceased officer's family is residing in India or not.

It is to the advantage of an officer to join the Fund on his first tour of service in India, as otherwise, on joining it in a subsequent tour he would have to pay subscriptions for any previous tours in the country as a married officer, since 1st January 1919.

The Fund (late Queen's Military Widows' Fund) was established in 1820, to assist families of British Service (Army) officers dying in India, and mainly to enable them to return Home without delay.

The Fund is controlled by a Committee consisting of and elected by subscribing officers serving at Army Headquarters, Simla.

For admission and rules apply to:—

The Secretary,
MILITARY WIDOWS' FUND,
Army Headquarters, Simla.

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 The General Officer Commanding-in-Chief, Southern Command.
 The General Officer Commanding-in-Chief, Eastern Command.
 The General Officer Commanding-in-Chief, Western Command.

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Ex-officio Members.

- | | |
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4. Mr. J. Crerar, C.S.I., C.I.E.
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12. The Director, Royal Indian Marine.
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2. Major H. G. Martin, D.S.O., O.B.E.
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(COX'S AND KING'S BRANCH), SIMLA.

1. The United Service Institution of India is situated at Simla.
 2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed inside front cover.

3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published.

4. There is a well stocked library in the Institution, from which members can obtain books on loan free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V.-P. for the postage.

5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members but ordinary members wishing to have their Journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.

6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found in para. IV, Secretary's Notes.

7. Members are responsible that they keep the Secretary carefully posted with regard to changes of address.

8. When on leave in England, members can, under the affiliation rules in force, attend the lectures and make use of the reading-room, etc., of the Royal United Service Institution, Whitehall, on payment of a subscription of 5 shillings per six months.

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United Service Institution of India.

JANUARY, 1925.

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I.—New Members.

The following new members joined the Institution from 13th September 1924 to 3rd December 1924.

Life Members.

Major H. H. Maharaja Sir Udaji Rao Puar of Dhar.

Ordinary Members.

Captain A. G. Porter.	Captain C. E. Hare.
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Captain T. R. Anderson.	Captain A. N. M. Watkins.
Lieut. E. R. Waterhouse.	

II.—Examinations.

Books on military history and languages with dictionaries are available in the Library. The following list of books may be found useful for reference by officers studying for Promotion Examinations or entrance to the Staff College.

The lists of books presented and purchased as shown in the current year's Journals should also be consulted.

The special periods of military history for future Promotion Examinations are as follows (*vide* I. A. O. 409 and 493 of 1924):—

1	2	3	4	5
Serial No.	Date of examination.	Campaign set for the first time.	Campaign set for the second time.	Campaign set for the last time.
1	April, 1925 ...	The Russo-Japanese War, 1904, to the Battle of Liao-Yang inclusive.	...	Campaign in Gallipoli (as given in Serial 3, column 3 of Army Order II of 1922).
2	October, 1925	Operations in Waziristan, 1919-20.	Russo-Japanese War (as given in Serial 1, column 3).	
3	April, 1926 ...	...	Waziristan (as given in Serial 2, column 3).	Russo-Japanese War (as given in Serial 1, column 3).
4	October, 1926	Campaign of the British Army in 1914 in France and Belgium from the outbreak of hostilities up to and including the operations on 9th September, 1914.	...	Waziristan (as given in Serial 2, column 3).

MILITARY HISTORY.

1. *The Campaign of the British Army in France and Belgium up to 20th November, 1914.*

A.—OFFICIAL HISTORY OF THE WAR.

Military Operations, France and Belgium Vol. I (to October 1914.)
Ditto ditto Vol. II (to 20th November.
1914) (in Press).

Sir John French's Despatches.

B.—OTHER BOOKS.

40 days in 1914 (General Maurice, new edition).

1914 (Viscount French).

My War Memories (Ludendorff).

General Headquarters 1914—16 and its Critical Decisions
(Falkenhayn).

The March on Paris, 1914 (Von Kluck).

Ypres 1914. (An official account) (German General Staff).

Oxford Pamphlets, August 1914. The Coming of the War.
(Spencer Wilkinson).

Oxford Pamphlets, August 1914, Nos. VII and X.

Times Documentary History of the War, Vol. V, Military,
Part I.

Times Documentary History of the War, Vol. VIII, Part III.

Der Grobe Krieg: Die Schlacht bei Mons (German General
Staff).

Der Grobe Krieg: Die Schlacht bei Longwy (German General
Staff).

Story of the Fourth Army (Montgomery).

2. The Palestine Campaign.

A.—OFFICIAL ACCOUNTS.—

A Brief Record of the Advance of the Egyptian Expeditionary
Force, 1919.

The Australian Imperial Force in Sinai and Palestine (H. S.
Gullett).

The New Zealanders in Sinai and Palestine (Lt.-Col. C. G.
Powles).

Yilderim (Dr. Steuber).

B.—OTHER BOOKS.

Allenby's Final Triumph (W. T. Massey).

How Jerusalem was Won (W. T. Massey).

Outline of the Egyptian and Palestine Campaigns, 1914—18
(Bowman-Manifold).

L'Attaque du Canal de Suez (Douin).

3. *The Gallipoli Campaign.*

Official Account : Official History of the War, Naval Operations, Vols. II and III.

Gallipoli Campaign (Outline of Military Operations). By A Student.

Official Despatches.

The Dardanelles (Callwell).

Experiences of a Dugout (Callwell).

Despatches from the Dardanelles (Ian Hamilton).

The Navy in the Dardanelles Campaign (Wemyss).

The World Crisis (Winston Churchill).

4. *The Russo-Japanese War, 1904, up to and including the battle of LIAO-YANG.*

A Staff Officer's Scrapbook (Ian Hamilton).

German Official Account.

Lectures on the Strategy of the Russo-Japanese War (Bird).

Question on the Russo-Japanese War (Brunker).

Official Account : The Russo-Japanese War (Naval and Military), 3 Vols., published by Committee of Imperial Defence.

Outline of the Russo-Japanese War (Ross).

A Study of the Russo-Japanese War (Chasseur).

My Experiences at Nan Shan and Port Arthur (Tretyakow).

Outline History of the Russo-Japanese War, 1904, up to the Battle of Liao-Yang, with Questions and Answers (P. W.)

5. *Organisation of Army since 1868.*

A.—ORGANIZATION OF ARMY SINCE 1868.

History of British Army, by Fortescue. Vols. I to XI.

Outline of the Development of British Army, by Maj.-Genl. Sir W. H. Anderson.

Our Fighting Services, by Sir Evelyn Wood

B.—FORCES OF THE EMPIRE.

The Statesman's Year Book.

Army List.

Articles in Newspapers and Magazines, *viz.*, R. U. S. I.

Army Quarterly, Journal of the U. S. I. of India, etc.

6. *Development and Constitution of the British Empire.***A.—THE BRITISH EMPIRE.**

Encyclopædia Britannica—(contains much concentrated information).

The Statesman's Year Book.

Whitaker's Almanack.

The Colonial Office List.

The Government of the British Empire (Jenks, 1923).

The Foundation and Growth of the British Empire (J. A. Williamson, 1918).

- The Beginnings of English Overseas Enterprise (Sir C. P. Lucas, 1917).

The British Empire Series. (XII volumes).

The Government of England (L. A. Lowell, 1912).

The Expansion of the British Empire (W. H. Woodward, 1921 and 1924 edition).

Overseas Britain (E. F. Knight, 1907).

The Origin and Growth of the English Colonies and of Their System of Government (H. E. Egerton, 1903).

A Short History of Politics (Jenks, 1900).

The English Constitution (Bagehot, 1909).

The Expansion of England (Sir J. Seely, 1883).

Introduction of the Study of the Law of the Constitution (A. V. Dicey, 1908).

England in the Seven Years' War (Sir J. Corbett, 1907).

Selected Speeches and Documents on British Colonial Policy.
2 Vols. (A. B. Keith, 1918).

B.—BOOKS ON SPECIAL PORTIONS OF THE EMPIRE OR WORLD.

The Rise and Expansion of British Dominions in India (Sir A. C. Lyall, 1894).

A Brief History of the Indian Peoples (Sir W. H. Hunter, 1907).

The Nearer East (Hogarth, 1902).

Modern Egypt (Cromer, 1908).

Egypt and the Army (Elgood, 1924).

The History of Canada (W. L. Grant).

Nova Scotia (B. Wilson, 1911).

Report on British North America (Sir C. P. Lucas).

The Union of South Africa (R. H. Brand, 1909).

Short History of Australia (E. Scott).

History of the Australasian Colonies (Jenks, 1912).

The English in the West Indies (J. A. Froude, 1888).

The Lost Possessions of England (W. F. Lord, 1896).

7. Military Geography.

Naval and Military Geography of the British Empire (Dr. Vaughan Cornish, 1916).

Elementary Imperial Military Geography (Capt. D. H. Cole, 1924).

Introduction of Military Geography (Col. E. S. May).

Imperial Defence (Col. E. S. May).

Main Feature of the Japanese and other Pacific Problems.
(Reprinted from "Morning Post." Sifton Præd.)

Britain and the British Seas (H. J. Makinder, 1907).

Military Geography (Macguire).

Imperial Strategy (Repington).

War and the Empire (H. Foster).

Historical Geography of British Colonies (Dominions), 7 Vols.

(Sir C. P. Lucas, 1906—17)—

Vol. 1, Mediterranean.

Vol. 2, West Indies.

Vol. 3, West Africa.

Vol. 4, South Africa.

Vol. 5, Canada.

Vol. 6, Australia.

Vol. 7, India.

The Influence of Sea Power on History (A. T. Mahan, 1890).

Historical Geography of the British Empire (Hereford George)

The Mastery of the Pacific (A. R. Colquhoun, 1902).

Frontiers (C. B. Fawcett, 1918).

III.—Payment for Articles in the Journals.

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

IV.—Contributions to the Journal.

Articles submitted for publication must be typed in *duplicate*. With reference to Army Regulations, India, Volume II, paragraph 204 and King's Regulations, paragraph 509, action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee.

Instructions for the preparation of drawings and plans for reproduction by lithography.

These should be in *jet* black. No washes or ribands of colour should on any account be used.

If it is absolutely necessary to use colour (and these are only permissible in line work or names) the following will reproduce photographically, *i.e.* :—

Dark red, dark orange, dark green. No other colour should on any account be used.

V.—Library Rules.

1. The Library is only open to members and honorary members of the United Service Institution of India. Members are requested to look upon books as not transferable to their friends.

2. No book shall be taken from the Library without making the necessary entry in the register. Members residing permanently or temporarily in Simla are requested to enter their addresses.

3. The United Service Institution of India is open all the year round—including Sundays—from 9 A.M. until sunset. Books may be taken out at any time provided Rule 2 is complied with.

4. A member shall not be allowed, at one time, more than three books or sets of books.

5. Papers, magazines, "works of reference" or books marked "Not to be taken away," or noted as "Confidential" may not be removed.

6. No particular limit is set as to the number of days for which a member in Simla may keep a book, the Council being desirous of making the library as useful as possible to members; but if after the expiration of a fortnight from date of issue it is required by any other member it will be recalled.

7. Applications for books from members at out-stations are dealt with as early as possible, and books are despatched per Registered V.-P. P. They must be returned carefully packed per Registered Parcel Post within one month of date of issue, or application made for permission to retain them for a further period. This will always be granted unless the book is required by another member.

8. If a book is not returned at the end of four months, it must be paid for without the option of return, if so required by the Executive Committee.

9. Lost and defaced books shall be replaced at the cost of the member to whom they were issued. In the case of lost books which are out of print the value shall be fixed by the Executive Committee, and the amount, when received, spent in the purchase of a new book.

10. The issue of a book under these rules to any member implies the latter's compliance with the rules, and the willingness to have them enforced, if necessary, against him.

11. A list of all books presented and purchased, and also a list of books useful to members studying for the Staff College and Promotion Examinations, will be found under Secretary's Notes in the quarterly issue of the U. S. I. Journal. Members are invited to note any books which they think might with advantage be procured for the Institution. The suggestions will be placed before the Secretary.

12. Members are invited to contribute presents of books, maps, and photographs of naval and military interest. These may be addressed to the Secretary, U. S. I. of India, Simla. They will be duly acknowledged.

VI.—Library Catalogue.

The new catalogue completed to 31st March 1924 is now available. Price Rs. 3-8-0 or postage paid Rs. 3-14-0.

VII.—Gold Medal Prize Essay.

Gold Medal Prize Essay Competition, 1924-25.

The Council have chosen the following subject for the Gold Medal Essay for 1924-25 :—

“How can the balance be best maintained between the following considerations affecting the Regimental Officer :—

(a) The claims of his unit.

(b) The claims of his military education, in the widest sense, in the form of extra-regimental courses?”

The following are the conditions of the competition :—

(1) The competition is open to all gazetted officers of the Civil Administration, the Royal Navy, Army, and Royal Air Force or Auxiliary Force who are members of the U. S. I. of India.

(2) Essays must be printed or type-written and submitted in triplicate.

- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay, there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1925.
- (6) Essays will be submitted for adjudication to 3 judges chosen by the Council. When the decisions of the 3 judges are received the Committee will submit the four essays, placed first in order by the judges, with their recommendations on the award of the Gold Medal to the Council, who will decide whether the Medal is to be awarded and whether the essay be published.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1925.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely* and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
- (9) Essays should not exceed about 15 pages of the size and style of the Journal exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA :
31st December, 1924. }

E. J. ROSS, MAJOR,
Secretary, U. S. I. of India.

VIII.—Army List pages.

The U. S. I. is prepared to supply members and units with manuscript or type-written copies of Indian Army List pages, at the following rate:—

Type-written, per page, Rs. 2.

IX.—

Books Presented.

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
Autobiography of General Sir O'Moore Creagh. (Presented by the Publishers, Messrs. Hutchinson, London.)	1924	
Simple Organisation and Administration.	1924	Captain R.H.D. Bolton.
A Record of the Battles and Engagements of the British Armies in France and Flanders, 1914—18. (Both the above presented by Messrs. Gale and Polden, Publisher, Aldershot.)	1924	Captain E. A. James.
"Watch the Pacific" (Presented by the Publishers, Coles Book Arcade, Sydney.)	... 1924	E. G. Marks.
"Main Features of the Japanese and other Pacific Problems." (Published by Messrs. Sifton Præd, London), (reprinted from articles in the "Morning Post," 1923).	1924	"Watch Dog."
Outline of History of the Russo- Japanese War, 1904.	1924	"P. W."
A Scheme of Preparation for the Staff College Entrance Examination. (All three presented by the Publishers, Messrs. Sifton Præd and Co., London.)	1924	Captain W. H. A Bishop.

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
The Dominions and Dependencies of the British Empire Vol. 1, (British Empire Series.)	1924	Dominion Authorities.
Resources of the Empire and their Development, Vol. 4 (British Empire Series.) (Both the above presented by the Publishers, Messrs. Wm. Collins, London.)	1924	Evans Lewin.
Tales of Turkey (Presented by the Publishers Messrs. John Murray, London.)	... 1924	Major E. W. C. Sanders.
Secret Societies and Subversive Movements. (Presented by the Boswell Publishing Co., London.)	1924	N. H. Webster.
Modern European History (Presented by the Publisher Mr. W. Arnold, London.)	1924	W. F. Reddaway.
Manual of Movement (War) ... (Presented by the General Staff Branch.)	1923	Official.
With Allenby's Crusaders ... (Presented by the Publishers, Messrs. Heath Cranton.)	1924	John More.
History of the Indian Wars ...	1924	C. Downing.
A New History of Great Britain	1923	R. B. Mowat.
George III and the American Revolution, the beginnings.	1924	A. A. Mumby.
The Passing Years ...	1924	R. G. V. Lord W. de Broke.
Sind, an Interpretation of the Unhappy Valley.	1924	Abbott, I. C. S.

<i>Title</i>	<i>Published.</i>	<i>Author.</i>
The German White Book. (All the above presented by the Oxford University Press, Bombay.)	1924	
Races of Burma. (Presented by the Govern- ment of India.)	1924	Major C. M. Enriquez.

Books Purchased.

1. The Diary of a "U-Boat" Commander. 1920 "Etienne."
2. The Big Four and Others of the Peace Conference. 1922 R. Lansing.
3. Arabia Infelix or the Furks in Yamen. 1915 G. Wyman Bury.
4. The Merchant Navy. (Vol. 1) 1921 A. Hurd.
5. Expansion of the British Empire. (5th Edition). 1924 W. H. Woodward.
6. Foreign Policy of the Labour Party. 1923 J. R. MacDonald
7. Facing Reality ... N.D. Small Letters.
8. Studies of German Defences near Lille. 1919 Captain B. T. Wilson.
9. British War Dogs ... N.D. Lieut.-Col. Richardson.
10. The Empire at War. (Vol. III) 1924 Sir C. Lucas.

X.—Pamphlets.

The following are available for sale on application to the Secretary:—

- (a) British and Indian Road Space Tables (separately). Price as. 8 each plus postage. It is suggested that these may be useful for staff rides, etc.—
- (b) Diagram of Ammunition Supply (India). Price as. 4 plus postage.
- (c) Skeleton Diagram of Signal Communications of a Division. Price as. 6 plus postage.
- (d) Home War Establishment Tables (provisional). Price Re. 1-4-0 per copy, plus postage.

XI.—Schemes.

The following schemes based on lectures given at the course for officers studying for the Staff College Entrance Examination, are now available for sale, on application to the Secretary :—

(a) Mountain Warfare (with four problems). Price Rs. 4, plus postage.

(b) Administration (with one problem). Price Rs. 2, plus postage.

(c) Artillery (with one problem). Price Rs. 2, plus postage.

To save expense to officers, maps, other than sketch maps, are not being supplied by the Institute. It is thought that the maps required will be readily obtainable by students.

These are for (a) Survey of India maps of Waziristan and Baluchistan, and for (b) and (c) Map 1/100,000 Rheims (1st Training for War Paper. Staff College Entrance Examination. 1924).

In addition 2 Tactical Schemes suitable for Promotion Examination are available. (Price Rs. 5 with maps).

(d) Captain to Major.—1 Scheme.

(e) Lieut. to Captain.—1 Do.

Other Schemes are in preparation.

United Service Institution of India.

Prize Essay Gold Medalists.

(With rank of Officers at the date of the Essay.)

- 1872.. **ROBERTS**, Lieut.-Col. F. S., v.c., C.B., R.A.
 1873.. **COLQUHOUN**, Capt. J. S., R.A.
 1874.. **COLQUHOUN**, Capt. J. S., R.A.
 1879.. **St. JOHN**, Maj. O. B. C., R.E.
 1880.. **BARROW**, Lieut. E. G., 7th Bengal Infantry.
 1882.. **MASON**, Lieut. A. H., R.E.
 1883.. **COLLEN**, Maj. E. H. H., s.c.
 1884.. **BARROW**, Capt. E. G., 7th Bengal Infantry.
 1887.. **YATE**, Lieut. A. C., 27th Bajuch Infantry.
 1888.. **MAUDE**, Capt. F. N., R.E.
 YOUNG, Maj. G. F., 24th Punjab Infantry (specially awarded
 a silver medal).
 1889.. **DUFF**, Capt. B., 9th Bengal Infantry.
 1890.. **MAGUIRE**, Capt. C. M., 2nd Cav., Hyderabad Contingent.
 1891.. **CARDEW**, Lieut. F. G., 10th Bengal Lancers.
 1893.. **BULLOCK**, Maj. G. M., Devonshire Regiment.
 1894.. **CARTER**, Capt. F. C., Northumberland Fusiliers.
 1895.. **NEVILLE**, Lieut.-Col. J. P. C., 14th Bengal Lancers.
 1896.. **BINGLBY**, Capt. A. H., 7th Bengal Infantry.
 1897.. **NAPIER**, Capt. G. S. F., Oxfordshire Light Infantry.
 1898.. **MULLALLY**, Maj. H., R.E.
 CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a
 silver medal).
 1899.. **NEVILLE**, Col. J. P. C., s.c.
 1900.. **THUILLIER**, Capt. H. F., R.E.
 LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).
 1901.. **RANKEN**, Lieut.-Col. G. P. P., 46th Punjab Infantry.
 1902.. **TURNER**, Capt. H. H. F., 2nd Bengal Lancers.
 1903.. **HAMILTON**, Maj. W. G., d.s.o., Norfolk Regiment.
 BOND, Capt. R. F. G., R.E. (specially awarded a silver medal).
 1904.. **MACMUNN**, Maj. G. F., d.s.o., R.F.A.
 1905.. **COCKERILL**, Maj. G. K., Royal Warwickshire Regiment.
 1907.. **WOOD**, Maj. E. G. M., 99th Deccan Infantry.
 1908.. **JEUDWINE**, Maj. H. S., R.A.
 1909.. **MOLYNEUX**, Maj. E. M. J., d.s.o., 12th Cavalry.
 ELSMIE, Maj. A. M. S., 56th Rifles, F. F. (specially awarded
 a silver medal).
 1911.. **Mr. D. PETRIE**, M.A., Punjab Police.
 1912.. **CARTER**, Maj. B. C., The King's Regiment.
 1913.. **THOMSON**, Maj. A. G., 58th Vaughan's Rifles (F.F.).
 1914.. **BAINBRIDGE**, Lieut.-Col. W. F., d.s.o., 51st Sikhs (F.F.).
 NORMAN, Maj. C. L., m.v.o., q.v.o., Corps of Guides (specially
 awarded a silver medal).
 1915.. No Award.
 1916.. **CRUM**, Maj. W. E., v.d., Calcutta Light Horse.
 1917.. **BLAKER**, Maj. W. F., R.F.A.
 1918.. **GOMPERTZ**, Capt. A. V., m.c., R.E.
 1919.. **GOMPERTZ**, Capt. M. L. A., 108th Infantry.
 1920.. **KEN**, Lt.-Col. F. S., d.s.o., 2/15th Sikhs.
 1921.. No Award.
 1922.. **MARTIN**, Maj. H. G., d.s.o., o.b.e., R.F.A.
 1923.. **KEN**, Colonel F. S., d.s.o., I.A.
 1924.. No award.

MacGREGOR MEMORIAL MEDALS

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—silver medal.

(b) For soldiers—British or Indian—silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

Note.

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council Meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

MacGregor Memorial Medalists.

(With rank of officers at the date of the Award.)

1889..BELL, Col. M. S., V.C., R.E. (specially awarded a gold medal).

1890..YOUNGHUSBAND, Capt. F. E., King's Dragoon Guards.

* *N.B.*—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves, also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments, Frontier Militia, Levies and Military Police, also all ranks serving in the Imperial Service Troops.

MacGregor Memorial Medalists—(contd.).

- 1891.. SAWYER, Major H. A., 45th Sikhs.
RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.. VAUGHAN, Capt. H. B., 7th Bengal Infantry.
JAGGAT SINGH, Havildar, 19th Punjab Infantry.
- 1893.. BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).
FAZALDAD KHAN, Dafedar, 17th Bengal Cavalry.
- 1894.. O'SULLIVAN, Major G. H. W., R.E.
MULL SINGH, Sowar, 6th Bengal Cavalry.
- 1895.. DAVIES, Capt. H. R., Oxfordshire Light Infantry.
GANGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.. COCKERILL, Lieut. G. K., 28th Punjab Infantry.
GHULAM NABI, Sepoy, Q. O. Corps of Guides.
- 1897.. SWAYNE, Capt. F. J. F., 10th Rajput Infantry.
SHAHZAD MIR, Dafedar, 11th Bengal Lancers.
- 1898 WALKER, Capt. H. B., Duke of Cornwall's Light Infantry.
ADAM KHAN, Havildar, Q. O. Corps of Guides.
- 1899.. DOUGLAS, Capt. J. A., 2nd Bengal Lancers.
MIHR DIN, Naik, Bengal Sappers and Miners.
- 1900.. WINGATE, Capt. A. W. S., 14th Bengal Lancers.
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.. BURTON, Maj. F. B., 17th Bengal Lancers.
SUNDAR SINGH, Colour Havildar, 31st Burma Infantry.
- 1902.. RAY, Capt. M. R. E., 7th Rajput Infantry.
TILBIR BHANDARI, Havildar, 9th Gurkha Rifles.
- 1903.. MANFOLD, Lieut.-Col. C. C., I.M.S.
GHULAM HUSSAIN, Lance-Dafedar, Q. O. Corps of Guides.
- 1904.. FRASER, Capt. L. D., R.G.A.
MOGHAL BAZ, Dafedar, Q. O. Corps of Guides.
- 1905.. BENNICK, Maj. F., 40th Pathans (specially awarded gold medal)
MADHO RAM, Havildar, 8th Gurkha Rifles.
- 1906.. SHAHZADA AHMAD MIR, Risaldar, 38th Jacob's Horse.
GHAFUR SHAH, Lance-Naik, Q. O. Corps of Guides Infantry.
- 1907.. NANGLE, Capt. M. C., 92nd Punjabis.
SHEIKH USMAN, Havildar, 103rd Mahratta Light Infantry.
- 1908.. GIBBON, Capt. C. M., Royal Irish Fusiliers.
MALANG, Havildar, 56th Punjab Rifles.
- 1909.. MUHAMMAD RAZA, Havildar, 106th Pioneers.

MacGregor Memorial Medalists—(concl'd.).

- 1910.. **SYKES**, Maj. M., c.m.g., late 2nd Dragoon Guards (specially awarded a gold medal).
TURNER, Capt. F. G., R.E.
KHAN BAHADUR SHER JUNG, Survey of India.
- 1911.. **LEACHMAN**, Capt. G. E., The Royal Sussex Regiment.
GURMUKH SINGH, Jemadar, 93rd Burma Infantry.
- 1912.. **PRITCHARD**, Capt. P. P. A., 83rd Wallahabad Light Infantry (specially awarded a gold medal).
WILSON, Lieut. A. T., c.m.g., 32nd Sikh Pioneers.
MOHIBULLA, Lance-Dafedar, Q. V. O. Corps of Guides.
- 1913.. **ABBAY**, Capt. B. N., 27th Light Cavalry.
SIRDAR KHAN, Sowar, 39th (K.G.O.) Central India Horse.
WARATONG, Havildar, Burma Military Police (specially awarded a silver medal).
- 1914.. **BAILLY**, Capt. F. M., I.A. (Political Department).
MORSHEAD, Capt. H. T., R.E.
HAIDAR ALI, Naik, 106th Hazara Pioneers.
- 1915.. **WATERFIELD**, Capt. F. C., 45th Battray's Sikhs.
ALI JUMA, Havildar, 106th Hazara Pioneers.
- 1916.. **ABDUR RAHMAN**, Naik, 21st Punjabis.
ZARGHUN SHAH, Havildar, 58th Rifles (F. F.) (specially awarded a silver medal).
- 1917.. **MIAN APRAZ GUL**, Sepoy, Khyber Rifles.
- 1918.. **NOEL**, Capt. E. W. C. (Political Department).
- 1919.. **KHEILING**, Lt.-Col. E. H., m.c., R.E.
ALLA SA, Jemadar, N.-E. Frontier Corps.
- 1920.. **BLACKER**, Capt. L. V. S., Q. V. O. Corps of Guides.
AWAL NUR, C. Qm. Havildar, 2nd Bn., Q. V. O. Corps of Guides (Special gratuity of Rs. 200.)
- 1921.. **HOLT**, Major A. L., Royal Engineers.
SHER ALI, Sepoy No. 4952, 106th Hazara Pioneers.
- 1922.. **ABDUL SAMAD SHAH**, Capt., o.b.e., 31st D. C. O. Lancers.
NUR MUHAMMED, Lance-Naik, 1st Guides Infantry, F. F.
- 1923.. **BRUCE**, Capt. J. G., 2/6th Gurkha Rifles.
SOHBAT, Head Constable, N.-W. F. Police.
HARI SINGH THAPA, Survey Department.
- 1924.. **HAVILDAR RAHMAT SHAH**, N.-W. F. Intelligence Corps.
NAICK GHULAB HUSSAIN, N.-W. F. Intelligence Corps.

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EDITORIAL.

Since the last editorial was written the elections have come and gone. Although in the services we are not concerned with politics, we are, as a whole, more affected by them than almost any other class, for military policy, military training, and military organization must vary according to the strength and the ideals of the party in power.

Our most important requirements are decision and continuity of policy on the part of Government, both as regards the internal affairs of the services and in relations with foreign powers. Frequent chopping and changing within the services must be detrimental to efficiency. If there is no continuity of foreign policy it becomes impossible for our higher command to foresee the future and organize accordingly, or to adopt a definite policy with regard to training and preparations for defence. It is obvious, therefore that a government with a narrow majority, which may be compelled at any moment to alter its policy in response to a popular clamour, must foster weakness in the services. In so far then as it is likely to produce continuity of policy, the magnitude of the Conservative victory is all to the good from the service point of view.

On the other hand, an enormous majority in the house is apt to produce a government too little inclined to give ear to sound criticism. There is therefore a danger that mistakes and errors may be disregarded to an extent which would be impossible were the opposition strong and alert.

With regard to India the result of the elections can scarcely fail to be good. India needs a reasonably progressive policy

carried out with firmness, without vacillation and, above all, without precipitation. The East moves slowly—far too slowly for a government which never knows from day to day when it will fall.

One of the first principles of Conservative policy has always been to foster a closer union between the Dominions and the Mother Country. This depends on a community of interests—on a general feeling that the futures of the component parts of the Empire are inextricably bound together. Blood is thicker than water—but in these days the bond of blood brotherhood is not sufficient. Community of political, of defensive and of commercial interests is equally important.

It is absolutely essential that foreign policy be carried on with full regard for the feelings and aspirations of the great Dominions. Even where these are not directly represented at negotiations they must feel that due weight is given to their opinions and to their interests. In return they must realise that, so long as the United Kingdom bears the burthen of Imperial defence, for so long must she have the final decision in matters which may eventually resolve themselves into questions of defence. In the past all has not always been too well in this respect, and only too often one or another of the dominions has felt that her interests have been belittled or neglected. This has been specially the case when considering the question of defence.

Australia is, and feels herself to be, in a very dangerous and isolated position. Her coasts can only be protected from overseas attack by the Imperial fleet holding naval command of the North Pacific. She can only be reinforced in the event of attack by troops coming from or *via* India. For her to retain her trust in the will and ability of the Central Government to protect her, two things are necessary. Firstly she must see such steps being taken as will make it possible for the Imperial fleet to protect her coasts immediately on the outbreak of war, and secondly she must have no doubts of the stability of India within the Empire. That the Conservative Government will make these two points the basis of their policy with regard to the Pacific is not too much for which to hope.

Note:—Since the above was written Government have definitely decided to continue the construction of the Singapore naval base.

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With the Turkish withdrawal North of Mosul, the situation in Iraq has definitely improved. Nevertheless the position is not free from grave anxieties.

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French military policy is based on no exaggerated idea of the present power or efficiency of the League of Nations, but on the principle that, until the League has proved itself a really effective instrument for the policing of the world, the first duty of every nation is that of its own defence.

The French are, therefore, determined to maintain an efficient force for the defence of their country in case of a future revival in Germany. The shortage of man power is the chief difficulty which they have to face, and recent reorganizations have all been carried out with a view to attaining the greatest economy in this respect. Reorganization follows two lines. Firstly the replacement wherever possible of man power by machines, and secondly a careful organization of the resources of the nation in rear of the fighting troops.

The situation in the French Riff country is still somewhat obscure. It was only to be expected that the Spanish failure on the other side of the border would react unfavourable in French territory. Unlike their neighbours, however, the French are well organized and well led in these parts, nor are they hampered by the same dissensions at home. With a leader like Lyautey on the spot it is hardly likely to be long before affairs on the French side of the border reassume their normal aspect.

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The present issue of the Journal commences with a very interesting article on the subject of Advanced Guards and their command. The writer lays great stress on the importance of maintaining the tactical formation intact, however great the temptation may be to split up commands. The antidote to this temptation is "Trust the man on the spot—but first train him to be worthy of trust."

int in this connection which is only touched on lightly is the importance of affording additional assistance to the staff of a formation which has a lot of outside units attached to it. A

Brigade Staff is only organized for the duty of dealing with the units of that brigade. So soon as the brigade commander becomes advanced guard commander as well, he will nearly always have a considerable number of outside units placed under his command, and this too just at the moment when his staff have their hands most full did in dealing with complicated operations. The article on the solution of tactical schemes on the map, which appeared in the last issue of the Journal, contained a very vivid word picture of the conditions under which a brigade staff work during a rush period.

Where a battalion commander is detailed as advanced guard commander, with his own battalion and a considerable number of other troops under him, the need for allotting a staff officer to him is often overlooked but is of still greater importance. The battalion commander cannot command his own battalion as well as the advanced guard. He must delegate the former duty to his second-in-command. His normal staff officer is his adjutant. But it would be very unfair to the second-in-command to push him suddenly into command, and at the same time remove the adjutant.

The solution appears to be for the divisional staff to be so organized that it can always spare a reliable staff officer for duty with a detachment of this nature. This system has much to recommend it. It helps the man on the spot by giving him, not only a competent staff officer, but one who is up to date in the tactical situation. It also facilitates liaison and makes for close co-operation.

* * * * *

The article on the individual training season appearing in the pre-ent number will, it is hoped, prove of particular interest to regimental officers, whose year is spent at present in a race against time.

There is no question that the additional training imposed by the multiplication of modern weapons is very difficult to fit into the yearly programme. We have no hesitation in saying that, under present conditions, it is impossible to carry out the annual training programme as it should be carried out, complete in every detail and progressive from A—Z.

Two possible solutions present themselves—either to adjust leave and furlough regulations to fit the needs of training, or to extend the training period so as to cover a cycle of two years instead of one.

The article to which we refer puts forward a carefully thought out scheme for adopting the first solution. It touches only lightly however on the Indian soldiers views with regard to any alteration in the present leave and furlough rules.

We will be glad if other regimental officers will put forward their views on the subject, which is, we understand, at present receiving considerable attention at Army Headquarters.

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We are indebted to the R. A. Institute, Woolwich, for their kind permission to republish a most interesting article entitled "The course of Future Wars," by Major-General Sir W. E. Ironside, K.C.B., C.M.G., D.S.O.

This article is a most interesting attempt to forecast the progress of a future war, and to arrive at the respective values of land and air operations in reaching a decision.

* * * * *

Two articles on the Gallipoli campaign are published. These, as well as being of great interest to the general reader, will it is hoped help students studying for the spring examinations.

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In connection with examinations we are asked to say that all units should by this time be in possession of copies of Home War Establishments and Home Mobilisation Regulations. Should any unit not be in possession of these it should refer to the next superior formation.

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A certain number of schemes suitable for students working for the Staff College examination are now ready, *vide* Seceretary's notes.

To reduce prices it has been decided not to issue maps with these schemes, as the maps required can usually be obtained from official sources.

A considerable amount of difficulty is being experienced in the Library owing to non-compliance with rules by members—especially rules No. 1 and 7.

Members are also particularly requested to refrain from marking and otherwise defacing books which are, after all, not private property, but that of the Institute. Marginal comments, however learned, are not usually appreciated by future readers who wish to study the author's ideas and form their own conclusions thereon.

* * * * *

The Council has decided to start a correspondence column as a regular feature of the Journal. It is realised that there are many points on which regulations and manuals are somewhat ambiguous. At the same time many questions in connection with training and other subjects crop up which, though interesting, are too short to form the subject of a regular article.

If members will refer such matters to the Editor in letter form, the best advice available will be obtained in drafting an answer. The letter and the reply will then be printed together. It is hoped that this will not only give rise to interesting discussion, but may be of real use to students. The answers given, while in no sense official, may be taken as representing the views of the best authority available in this country. Communications intended for this column should be clearly marked "Letter to the Editor."

SOME THOUGHTS ON ADVANCED GUARDS AND THEIR COMMAND.

By Major-General Sir W. H. Anderson, K.C.B.

1. Generally, discussions concerning protective work by Advanced Guards on the continent before the late war led to two schools *as regards large national armies*.

(a) *The German School*.—This school advocated advances on a broad front with a view to strategic and tactical envelopment; each road on the front bearing a formation covered by its own advanced guard. It was the brutal form of warfare—hard offensive hitting by everybody, with envelopment as the central idea.

(b) *The French School*.—After the “reglement” of 1895, and especially in the “conduite des Grandes Unites” of October 1913, the French School, greatly influenced by General Foch’s teaching at the Ecole, Supérieure, adhered to the Napoleonic teaching obscured by the war of 1870-71; that a Generalissimo should retain his power of influencing the battle; not committing all his forces to brutal hard hitting by parallel columns on a broad front as advocated by the Germans; but covering his advancing columns by a single strategic guard of sufficient strength to give him warning of the enemy’s dispositions, in time to enable him to make his plan for the battle.

These two schools were influenced by preparation for a definite strategic conception: war between France and Germany: the invasion of the former by the latter.

8 *Some thoughts on Advanced Guards and their Command.*

The criticism against our F. S. Regt., 1909, was often made on the continent that we hedged between these two schools and had no definite doctrine in the matter for war on a continental scale. The answer was that we had no definite strategic situation in view; nor should we start a war with the vast forces of a continental army. But that there was some justification in the criticism was shown by the amendments to F. S. Regs. I, 1909, Section 65 (General Protective Duties) in 1912, and again to Section 65, para. 11, in February 1914—all betraying traces of tendency towards the French way of thinking.

We may say that the late war has not given us exact data from which to judge in which of these schools, if either, lies salvation. But we may, I think, say that the victories of Marshal Foch, in which our national army played so prominent a part, will incline us to study very closely his ideas, and to lean to French, rather than to German, teaching. Again, the probability of vast national forces coming into conflict at the opening of a campaign are much reduced by the present, and probable future development, of the limitation of armaments by the peace and League of Nations.

2. So much the greater then for us is the importance of studying the subject from the point of view of smaller forces; of corps or of a single corps, marching with the object of forcing back the enemy when met.

In this connection the French "Conduites des Grandes Unites" of October 1913 says:—

"There will be one Advanced Guard or several, according to the number of columns, and the width of front of the march.

"When there are several columns, the Corps Commander maintains the general direction of employment of his corps by reserving to his exclusive use all or part of the main bodies of the columns."

* * * * *

"The Advanced Guards in their turn, whether on the march, or at the halt, cover themselves by smaller detachments (van-guards, outposts, etc.), and reconnoitre by means of the small bodies of mounted troops assigned to them."

“The initial engagement of the enemy is the duty of the Advanced Guards, reinforced, if necessary, by portions of the main body.

“When there is more than one Advanced Guard, it is the duty of Divisional Generals, informed as to the intentions of the Corps Commander, to regulate the course of the engagement of the enemy on their Divisional front.

* * * * *

“In this initial engagement, infantry must be used sparingly, so that the commander may keep as much as possible in hand for attacks. The amount to be employed will be determined by the necessity of occupying, or capturing tactical points necessary for deployment, and to secure, if necessary, positions for artillery.

“The artillery has an important part to play. It is its duty to profit by the first infantry engagement—to seize the ascendancy over the hostile artillery from the commencement.

“The cavalry can be used advantageously before the initial engagement, to drive back or stop the hostile cavalry, to reconnoitre and delay hostile columns; and during the initial engagement to help and protect the action of the infantry and artillery.

“The initial engagement must always be a critical period, which should be shortened as much as possible. The length of the engagement must depend on the information in our possession, on the time necessary for the main body to take up its dispositions for action, and on the results which we expect to get from it. Its length will be considerably increased if it is necessary to fight for tactical points to cover deployment.

“Against an enemy in position, the object of the initial engagement is to drive back the enemy’s advanced detachments with a view to defining the real front of the defence.”

3. A question of importance is the selection of a commander for the Advanced Guard, and of the force to be placed under him.

The commander must either be the commander of a definite organisation, who already disposes of staff necessary for the exercise of his command, or a temporary commander of a temporary

10 *Some thoughts on Advanced Guards and their Command.*

detachment, to whom the necessary staff must be allotted. Command always was, and always must be, one of the greatest weaknesses of temporary detachments. And this weakness has been emphasised by the late war. The ease with which advancing troops can be held up by a few concealed machine guns, small parties armed with modern rifles and light machine guns, etc., under cover from the air, and the necessity of combining turning movements, with the prevention of delay to main bodies in rear, tend to the detailing of greater numbers *to be available* under the hand of the commanders of protective detachments which are intended to drive back the enemy when met, although these need not all be employed, and to the importance of those bodies consisting whenever possible of formed tactical units, accustomed to work together.

“Do not break the chain of command.” “Do not split up tactical units, especially infantry, if you can help it; inform the commanders of detachments fully of your intentions; and then trust the man on the spot to act correctly and not employ too many troops; until you definitely take over control,” is what I would hammer at Divisional Commanders.

The revised F. S. R., Vol. II, is very clear—

Section 81 (2).—“It (the tactical advanced guard) should whenever possible be composed of a complete unit or formation, under its own commander.”

Section 82 (1).—“The Advanced Guard Commander, before taking over his duties will be informed of what is known of the enemy, of the strength and composition of the Advanced Guard, and of the intentions of the commander of the force which he is covering and of the situation of the troops on his flank. He should receive instructions as to his line of action on meeting the enemy.”

Section 83 (2).—“The action of the Advanced Guard must be regulated solely in the interests of the force which it is covering, and at every stage the Advanced Guard Commander must consider the effect of his action on the plans of the commander of that force,”

“If the commander of the force has decided on offensive action, the Advanced Guard Commander should act with vigour against the enemy’s covering troops and should secure any tactical points which may assist the development of the attack by the main body.”

“The best way to assist the commander of the force in coming to a decision will usually be to drive in the enemy’s covering troops as soon as they are encountered. Such a step will rarely interfere with the commander’s liberty of action, while hesitation or delay may do so by allowing the enemy to seize the initiative.”

4. From the above it follows that, when there is a good chance of meeting the enemy, a divisional commander will be right in considering that the situation calls for an experienced Infantry Brigade Commander (with his own staff and a suitable mixed force) as his Advanced Guard Commander; a man to whom he can safely delegate responsibility to deal with the expected situation boldly and with complete confidence, when informed as to his commander’s wishes. He will almost always be wrong to break up the tactical command of the Infantry Brigade Commander, as is so often done; and to keep back one or two of his battalions out of the four, to march at the head of the main body; simply, as I see it, to prevent the Infantry Brigadier from employing them too soon; and to conform to outworn shibboleths as to the proportion of troops to be detailed for protective duties.

If the Brigade Commander is any good he will not employ all his force, simply because he has it and especially when he knows his Divisional Commander’s general intentions as to action on meeting the enemy and subsequently. He must be trusted to act correctly with the force of which he is the commander; not tied down in case he should do wrong. Again the situation often renders it quite likely that the Advanced Guard may be required to find outposts that night, and possibly to move on again as Advanced Guard the next day; another reason for giving the Advanced Guard Commander his whole Brigade.

12 *Some thoughts on Advanced Guards and their Command.*

There are, in fact, two methods by which the Divisional Commander can control the independence of action of his advanced guard:—

- (1) By detailing from Division Headquarters direct, a mixed detachment of definite strength under a specially appointed Advanced Guard Commander.
- (2) By instructions to an Infantry Brigade Commander, attaching to him the necessary divisional troops, and leaving to him the proportion of his command which he will employ immediately on protective duties, and, in case of meeting the enemy, within the limits imposed by these instructions.

The former is the Advanced Guard of tradition—it cannot be ruled out: but the definite detailing of the strength of fighting detachments implies a knowledge of the tactical situation at the moment of meeting the enemy, which the Divisional Commander will not possess in the case of advanced guard actions.

The latter appears more in conformity with modern usage and does not break the chain of command or split up tactical formations. It is the method which is now laid down as the normal in F. S. R.

5. This brings us to the general question of the importance of initiative, trust of subordinates and non-interference with them, which must form a feature of our training.

The following remarks regarding initiative, the gist of which are from General Van de Goltz in “The Nation in Arms,” are worthy of attention:—

“If in an army the habit prevails of only doing what is ordered, its movement is by fits and starts or somewhat spasmodic. It experiences on each occasion an interruption, when unforeseen circumstances intervene, because all concerned first wait the dispositions of the higher commanders. In order that the difficult task of leading armies well may succeed, it is vitally necessary that the impulses coming from above should be constantly prepared from below.

"The spirit of initiative urges to independent action. It renders armies strong. Passive obedience is not enough for us, nor even the fulfilment of orders when the occasion has demanded that more should have been done.

"Initiative is displayed by the commander of an advanced guard who perceives that the enemy is moving off, and who attacks him because he knows how harmful it would be to allow him to escape. But initiative must not be confused, as is so often done, with simple go ahead.

"An attack may be precisely a proof of want of initiative. Take the case of an advance guard, which is advancing and which attacks the enemy only because the commander cannot come to a clear decision as to what exactly he ought to do.

"Initiative may sometimes be inconvenient, by presenting '*fait accompli*' to the higher commander, which may be said to rob him of his liberty of action. But nothing can be more erroneous, than, *because inconveniences can occur*, to attempt to counteract the initiative in an army and to restrict on principle the independence of subordinates. In order to avoid a mistake being made a hundred helpful impulses are stillborn and an enormous amount of strength lost.

"And initiative is opposed by powerful influences, intellectual laziness, ordinary every day action, fear of responsibility, the habit of the majority of men of allowing themselves to be pushed on by events, of waiting until these impose upon them the duty of action, instead of acting on their own discernment.

"These negative forces already restrict the force of action. If they are aided and abetted by restricting and confining independence, it will not be long before the troops become inert and lack the mainspring necessary for great deeds.

"There is only one means of preventing the ill-consequence of this initiative, and that is, a uniform training of the discernment of officers. But the soldier must perpetually do something. The inclination for activity will only remain in him when he is certain to receive thanks, or at all events no disapprobation on principle. Higher commanders must have conscious generosity in dealing with the independent actions of subordinates."

14 *Some thoughts on Advanced Guards and their Command.*

6. To sum up, the lessons I want to urge are:—

- (i) The desirability of studying Marshal Foch's views on war and protection: without making heavy weather as to protective duties in the case of vast national armies at the commencement of a war—a case which is not likely to arise for us.
- (ii) The avoidance of breaking up tactical formations; detailing complete tactical units for definite duties, whenever possible.
- (iii) The importance of initiative and trust of subordinates.

We must *not* teach officers to guard against the confused orders and misleading instructions of inferior commanders and staffs, but rather to be prepared to accept responsibility and to delegate it freely to their juniors; we must instill co-operation, mutual confidence and lack of interference between commanders, staffs, and commanded. This implies uniform training and increased military education throughout the army.

The increase in our army of tanks, mechanicalised field artillery, motor machine-gun units, and other forms of mechanical weapons, with the consequent accession of mobility, will tend inevitably to the reduction of the proportion of infantry in our various formations. We must get our weight further forward, to deal with the increased power of the defensive; the mixed brigade will take the place of the division, we shall have smaller formations of all arms, under more junior leaders. There is nothing in this to alter the principles advocated above; on the contrary, the need is emphasised of the detachment of small permanent formations of all arms under their own commanders, for the service of Advanced Guards and similar detached duties.

THE DESTRUCTION OF MAKIN—FEBRUARY 1923.

(A lecture given at the Staff College, Quetta, by Major
M. Everett, D.S.O., R.E.)

My view point.—Before I begin to talk about Makin and its destruction, I must first tell you from what view point I propose to consider the operations, so that you may not be confused by hearing me lay emphasis on points which you may consider unimportant.

I propose to speak to-day entirely as an engineer.

Before I get on to the actual destruction of Makin, I propose to describe how the two brigades engaged, the 7th and the 9th, reached Tauda China, the camp from which the work was carried out.

The Razmak Road.—As you know, in 1922 work was started on the Razmak Road. The complete scheme was to build a road for heavy M. T. which would connect the Tochi Road with Sararogha in South Waziristan. Of this complete scheme, only part of the work was sanctioned to begin with, and the construction of the road from Isha, in the Tochi, to Razmak, was started.

The Razmak Road, after crossing the Tochi river by a concrete causeway, runs past Tal-in-the-Tochi to the Khaisora at Asad Khel. From here it runs up the left bank of that river to Razani, and from Razani it climbs up to the Raznak plateau, which is just over 7,000' above the sea.

From Razmak to Makin the country is very open with very little scrub: a broad valley consisting of 'raghzas,' with the Tauda China Algalad in the middle. There are no 'tangis' to get through, and there is no difficulty in striking at Makin.

The Road was constructed in a most unorthodox way. First came the R.E. building the road, and with them the Signals building a permanent telegraph line. Many weeks and many miles behind came the Protective Troops.

There were other curiosities too. An excellent one inch Map, mainly from air photographs, was constructed and served out in adequate quantities to troops before starting: this I believe is quite unique in the history of the Frontier.

Then again rations were adequate and suitable, and the supply of free clothing liberal.

Progress of the Road.—By November 1922, much of the preliminary work, such as survey, collection of contractors and labour, and so forth, had been done, but the road was only open as far as Tal, and that only for light cars.

During December, Lt. Dickson was murdered near Razani while he was working on the road survey with a badragga escort. This murder was planned by Musa Khan, of Lali Khel village, and carried out by his relatives and followers. I mention this murder because the refusal to hand over Musa Khan and the murderers to us was the official reason given for the destruction of Makin. Musa Khan is one of the three chief Mahsuds who have given us trouble for the last five years.

By the middle of January 1923 heavy lorries were running to Asad Khel, while the Ford vans carried on supplies as far as Razani. According to the original scheme this should have been the state of affairs by the 1st of January, so the evacuation of Ladha had to be postponed a month.

The 7th Bde. from Dardoni had moved slowly up the road as it progressed and, by the middle of January, were at Razani: the 5th Bde. were on the L. of C. at Asad Khel: and behind them again came the 8th Bde. in the Tochi, with their H. Q. at Bannu.

Track up to the Narai.—The next problem was to get the 7th Bde. up over the Razmak Narai. The brigade moved out under cover of piquets, and the existing camel track was cleaned up and improved by a battalion of Pioneers and 2 companies of Sappers and Miners, but it was not good enough for continuous camel convoy work, some parts of it being as steep as 1 in 4½. It was officially described to Razforce H. Q. as "Impassable in wet weather, and difficult always."

Orders were therefore given to realign the track,

The new track.—In passing, I should like to draw your attention to the fact that it is quite useless asking a Sapper how long a road will take to make before he has been able to make a reconnaissance of the alignment, and also that it is equally useless to send labour out to work on a new road before it has been aligned and marked out.

The first estimate of time given in this case was that it might take anything up to a fortnight, but after the ground had been examined and the road marked out, it was possible to estimate the job as requiring 4 days, which, as a matter of fact, panned out exactly right.

Work was started on January 19th by a battalion of Pioneers and 4 companies of Sappers and Miners and was completed by the evening of the 22nd: the ruling gradient was 1 in 8.

About 4 miles of old track were retained and some two miles of new road along the hillside, with very heavy jungle cutting through the holly oak scrub, were constructed.

It is worth remembering that all this part of Waziristan is heavily covered with bushes and scrub some 10' high, as this affects not only engineering but also tactics. The sniper and the Mahsud swordsman can come up completely concealed in it, and jungle cutting round piquets and along the sides of roads is essential.

Settling into camp is a much longer job too in such country. When the 7th Bde. first reached Razani, the Brigadier refused to occupy the correct site on the grounds that the jungle was too thick. The first troops to occupy it were, as a matter of fact, a company of Sappers who, after marching from Asad Khel, found that a battalion of Pioneers, who had been turned on to the job that morning, had, by working tremendously well, succeeded in clearing an area just big enough for the camp itself.

It took the whole company till dark to build sangars and clear a small field of fire round each, and even then the bushes were actually touching the tents in many places.

No wire could be erected for several days as none was obtainable and no proper perimeter was dug for a week or more as the necessary men could not be spared from the road work.

It seems rather a curious arrangement that the Brigade, which was only there to protect the technical troops and other labour who were building the road, should sit in a nice safe camp, some mile and a half away, while the technical troops had to fend for themselves in the scrub.

On waking up on the morning after the track up the 'narai' was finished, we found that snow was falling heavily, but, by a stroke of genius, the move was not cancelled. I called it a stroke of genius because the only hope of getting up for many days was to use the road before it had been broken up at all, and, moreover, the weather would probably keep the enemy quiet.

7th Brigade move to Razmak.—That day three field companies were out in the snow for 11 hours helping the brigade up the Narai. Early in the morning the whole track was a sheet of ice which had to be covered with earth throughout; then, later on, under the pounding of hoofs, the surface melted and, by the time the camels started to arrive, was turning into mud. The new part of the road became very bad from mud and had to be entirely covered with branches of holly.

Under such circumstances it is worth while considering, I think, whether it is not better to march the camels ahead of the mules. A camel's flat feet grip fairly well on a frozen mud surface, while he cannot stand up on slippery mud, whereas a mule's small hoof always seems to find the small patches of ice and on the other hand digs well down into mud. It would certainly have speeded up the march on this occasion.

However by eight o'clock in the evening the last of the camels were over the Narai. On that day the whole brigade, with its 1,100 mules and 1,450 camels, was passed up over a narai some 1,200' high, in a blinding snow storm, with the total loss of 5 camels. Luckily the weather was too bad for the Mahsud, who did not show his nose all day.

It was a great feat of endurance both on the part of the brigade and of the three Sapper companies, for work was continuous for the eleven hours.

Meanwhile the excavation of the motor road between Razani and Razmak was started and the 5th Brigade moved up to Razani.

All was now ready for the combined action of the 7th Brigade from Razmak and the 9th Brigade from Ladha, against the Makin villages.

The 9th Brigade.—As at this stage I was sent across to Wazirforce to take up the duties of C. R. E., Makin Column, I will leave the 7th Brigade sitting in their snow at Razmak, while I describe the movements of the 9th Brigade. Incidentally, I may mention that, to reach Piazza, which is about 16 miles from Razmak Narai, I had to travel 260 miles in an ancient Ford; this gave me a very keen appreciation of the value of the complete scheme of road work through to Sararogha.

The 9th Brigade was at Ladha. The original published scheme was that; they should evacuate Ladha on February 1st, retiring to Piazza; from the 2nd to the 13th should be occupied in destroying Makin; and starting on the 14th, the Brigade should continue its retirement from Piazza. However they did not leave Makin till March 22nd. No operation on the Frontier ever has finished up to time.

On February 1st Ladha was duly evacuated, without any trouble at all. Not to be outdone by the 7th Brigade, the 9th also moved in a snow storm.

On the 2nd, Cox Hill and Big Spur piquets were established. These, like nearly all the 9th Brigade piquets, were designed for one weak platoon of 20 rifles each. The positions of all the road piquets are shown on Map No. 1.

The move to Marobi.—Next day the 9th Brigade and also Advanced Wazirforce H. Q., which had come up from D. I. K. for the operations, moved on to Marobi, up the Dara Toi, a distance of about 4 miles, establishing 7 piquets during the day. There was practically no opposition and only 1 or 2 casualties.

Wiring materials and sandbags for these 7 piquets were carried on 61 pack mules, while materials required for the defence of the 9th Brigade at Tanda China, the next camp, and for explosives and extra tools were carried on 60 camels. Each piquet required about 20 pack mules in all, of which 8 were for defence materials: 1,500 sandbags had also to be taken for Knob

piquet as there were no stones there. This only allowed for one apron fence, some 10 yards from the walls of the piquet, being built. Transport was not available to carry up enough wiring materials for a second outer fence, which was one reason why the garrisons of the piquets was so large.

These materials were drawn from an R. E. dump formed at *Piazza*, which was under an officer, who refilled his dump from a similar one at *Sararogha*, also under an officer.

As it is often rather a problem to know what officers should go with an Advanced H. Q., I will give you the list of officers there on this occasion. There were the G. O. C., Gen. Matheson, his G 1 and G 3, the D. A. Q. M. G. and the D. A. A. G., a Camp Commandant and an A.D. C., a G 2 for Intelligence duties, a C. R. A. and a C. R. E., and attached to the H. Q. were the Political Agent, Mr. Pears, and a Wing Commander R. A. F.

The move to Tauda China.—On the 4th the Brigade moved on to Tauda China camp, some 2½ miles, establishing East Danger Point and Piccadilly piquets on the way, and 4 other piquets near the camp on arrival.

At Tauda China they met the 7th Brigade which moved down from Razmak to meet them. G. O. C. Wazirforce now took command of the combined force.

The Mahsuds were considerably more in evidence to-day, but had obviously not expected the 7th Brigade, for they very foolishly got in between the two brigades and suffered considerable casualties: ours were perhaps 30 in all.

At Tauda China.—The 7th Brigade very wisely established Tree Hill and Musa piquets (you will see them on the Map No. 2) that same day, as this meant keeping the covering troops of the 9th Brigade out till very late and having a holiday themselves next day. Next morning the 9th Brigade moved out and a piquet was built on Split Hill. Owing to casualties on the forward slopes of this hill, the retirement was difficult and a company of a British battalion had to stay out on the hill, near the piquet, all night. This was a good example of the danger of going beyond the top of the hill, on to the forward slope. In this case it was quite unnecessary, and every casualty

meant several others in trying to recover the man and his rifle. I don't suppose that particular company will forget their lesson as it froze hard all right and they were wearing shorts.

We had some 25 casualties during the day.

Lali Khel and Dinaur.—On the 6th a start was made with the demolition work, the first two victims being Lali Khel—Musa's own village—and Dinaur.

Lali Khel was supposed to have been completely destroyed by aerial bombardment and the fire of the 6" howitzers from Ladha, but I think that the various observers must have been rather optimistic, as at least 50 houses were still undamaged.

I know that everyone does not agree, but personally I am strongly of the opinion that, if the destruction of a village is decided on, there is only one way to do it, and that is to enter the village and blow it up and burn it.

I do not think that either the R. A. F or the Royal Artillery are able, with the equipment they have in India, to do any very serious damage. Later on in the lecture I will describe an attempt to destroy a village without entering it.

Most frontier towers have solid bases and these withstand a direct hit from a 112 lb. bomb or from a 6" howitzer: only the top is blown off, and that can easily be repaired. I understand that the 230 lb. bomb is far more effective.

The houses too have very strong and thick walls and are very hard to destroy—though they can be damaged either by 6" howitzer fire or by aerial bombardment.

I think that aerial bombardment has one very great use—it causes the tribesmen to split up their flocks and herds into small parties, each of which need a shepherd. I do not think that it has much effect on personnel, as the steep nullahs and hills furnish excellent cover and sites for dug-outs, and the Mahsud, at any rate, knows this.

Crops can, of course, be destroyed from air at the right time of year by small incendiary bombs: fruit trees are practically immune.

However, to return to the destruction of Lali Khel.

All the houses found were burnt and the bases of 4 towers were blown up.

In Dinaur, the houses were set on fire and a previously undamaged tower was blown up. Some damage was also done to the retaining walls of fields and to fruit trees, but the necessary infantry working parties were not available on this day for extensive operations of this nature.

I have several times been asked whether it was worth while pulling down the retaining walls: I think it was. They are often 5 or 6 feet high and are very easy to pull down—a poke with a long crowbar at the bottom often brings several yards tumbling down. Of course the stones cannot be removed but it must be very much more trouble to the tribesman to rebuild them than it is to us to pull them down.

Organization of demolition parties.—The organization of the demolition parties was as follows, in each brigade area:—

O. C. S. & M. Company in charge.

1 company S. & M. for demolition of towers and general supervision.

4 parties, each of 1 platoon Pioneers, for burning houses.

1 company of infantry, for retaining walls and fruit trees.

Large quantities of dry fodder, stacked in the trees, were available.

The time available was 4 hours: notwithstanding that this was the first day, and that the troops were therefore unused to the work, this was ample.

A house is prepared for burning by making a few holes, some two feet across, in the roof—generally one in the middle and one over each corner—breaking open all doors and windows, so that there may be a good draught, and then filling the room with all the dry fodder and brushwood available. This is piled up under the main beams, and kerosene oil is poured over it. The lighting up was done partly with portfires and partly with extemporized torches made of old sandbags soaked in a mixture of tar and

kerosene, and with a short handle. These were very satisfactory: they were easy to make and burnt for a long time. A house of 2 or 3 rooms takes about 8 men-hours to destroy in this way.

For the 5 towers and 100 houses destroyed, 150 slabs of guncotton and 100 gallons of kerosene were used.

Towers were blown up as soon as they were ready, but the burning was not so simple, owing to the dense clouds of smoke given off. The order to light up at 14-00 hours was sent by signal shortly before that hour, and the withdrawal started at 14-30 hours. This was far too long an interval and the smoke greatly hindered the artillery and the machine-gunners in supporting the retirement; 10—15 minutes is ample if the lighting up parties are numerous and properly organized.

The premature lighting of fires has to be guarded against: in Dinaur a house was fired by an S. and T. drabi who felt cold.

A good many extra tools have to be arranged for, chiefly billhooks, pickaxes, and crowbars for prodding down retaining walls—long iron wiring pickets do equally well for this.

The Sappers and Pioneers carried practically enough tools for themselves in their own equipment, but each infantry company needed about 90 extra ones.

While I am on this subject, I should just like to rub in that the tools in a Sapper company's equipment are never available for issue on loan to other units. You might as well ask a battalion to lend you a couple of dozen rifles.

Azdi Khel, Abbas Khel and Makin.—Three days later the 7th Brigade provided the covering troops, and also a working party of 3 infantry companies, and the villages of Azdi Khel, Abbas Khel, and part of Makin proper were destroyed.

In Azdi Khel the only tower was blown up, all the houses, some 30 in number, were burnt, and every fruit tree was either cut down or ringed: there were no fields.

If you remember, some displeasure was expressed at Home during the war at our enemy's habit of killing fruit trees: we must have learnt it from them.

Many of us thought that this killing of fruit trees was a mistake. After all, the Mahsuds are subjects of the Crown, albeit turbulent ones, and what one wants to do is to spank them till they are good—or any way, as good as they can be. The killing of fruit trees, especially by ringing the bark, which only has effect later on, is likely to cause bitterness for many years. However it was an order and had to be done.

In Abbas Khel, all the houses, except one belonging to the Political Officer's pet spy, were burnt, the retaining walls of all the fields were pulled down, every fruit tree was killed, and a number of rock dug-outs were blown in.

I asked what would happen to the spy when the others came back and found his house untouched when all the others were smoking ruins, but. I was told that he would be all right as in his house were stored all the valuables of all the other villagers.

The dug-outs were interesting. The biggest I saw was borrowed out in the side of a nullah, was about 12' square and 8' high, and was fully furnished. The occupants were perfectly safe from anything except an aeroplane bomb which burst just outside the entrance.

I did not see very many dug-outs myself, perhaps a dozen in all, but the existence of even one shows that the Mahsud has the idea, and there is no doubt that extensive aerial bombing will be countered by extensive dug-out building. .

There are plenty of sites near every village where dug-out accommodation can easily be arranged for the whole of the inhabitants, if necessary, but in a thickly wooded country such as I am describing it is generally less trouble and nearly as effective for them to scatter in the scrub close by.

Results of the burning on the 6th.—We were able at the same time to have a look at the results of the burning on the 6th. These were very good in Lali Khel, but not so successful in Dinaur where the quantity of dry fodder and brushwood collected in the houses had not been sufficient to burn the main beams. This was gone on with to-day by a platoon of Pioneers who were building a permanent piquet in Dinaur, but work was difficult owing to snipers who hit several of the platoon.

A few houses were also found on the outskirts of Lali Khel which had not been noticed before. This is a great difficulty owing to scrub, bad maps, and lack of information; good aeroplane photographs are essential for the R. E., but on this occasion were very hard to get.

I may say that I have been assured by the R. A. F. that large numbers of spare prints were available, but Razforce at Idak said Wazirforce had them, Wazirforce at D. I. K. said that Advanced Wazirforce had them, and Advanced Wazirforce at Tauda China said that no one had them. I believe the two brigades had enough for themselves.

On this day the withdrawal started 10 minutes after the fires were lit, and the covering troops got back as quickly as possible to our side of the smoke. This arrangement was quite satisfactory and incidentally greatly expedited the actual lighting up—men expecting the Mahsud in a few minutes do not dally.

Tora Tizha and Upper Dinaur.—On February 16th the 9th Brigade furnished the covering troops and the same demolition parties were available.

The problem, from an R. E. point of view, was rather different on this day, as the main village to be destroyed, Tora Tizha, was not covered in front at all, the ridges north and south of the village alone being held.

As the only object of the day's operations was the destruction of the village, this was a mistake. Luckily the Mahsud attack did not take place till late, and, when it did come, fell on a concentrated infantry company who were pulling down retaining walls in the fields, and not on the scattered parties of troops in the village. You will note that this was the only serious attack the Mahsuds made during the operation; it was the only time we left a loop hole for them.

Lack of protection means delay in getting on with the work, lack of supervision on the part of the senior R. E. officer, as he has to have one eye on defence, and also it means the possibility of the entire failure of the day's operations.

After the attack had been beaten off with considerable loss to the Mahsuds, sniping became heavy and work in the village difficult, several men being hit, specially Lewis gunners on the

outskirts. This delayed the lighting up by 4 minutes, so the fires were only lit 6 minutes, instead of 10, before the withdrawal started. As there were no troops in front, the fires should have been lit about 15 minutes before the withdrawal; it takes some time for the full volume of smoke to ascend and the lighting up parties would have had a better chance of making a clean getaway. As it was, a man was hit during the lighting up and was only brought back, out of the burning village, with great difficulty.

Work could not be started till noon owing to the difficult and unknown nature of the Dalakai Algad up which the Brigade advanced (you will see the Algad on map No. 2) but the 2 hours available were sufficient, the village being a small one.

All the houses were burnt, all the walls to fields pulled down, and all the fruit trees killed.

In upper Dinaur the half-dozen houses there were burnt, the base of a tower was blown up, and about, half the field walls were pulled down. A good deal more damage was also done in Dinaur where several half burnt houses were finished off and some hundreds of fruit trees were killed.

Makin.—On the 11th the troops had a rest, and on the 12th a 'tamasha,' as an attempt was made to destroy Makin by gun-fire—to "do it in," as the operation orders put it.

Two batteries of 3·7" howitzers one battery of 2·75" guns, and one battery of 6" howitzers were used, followed by aerial bombardment with incendiary bombs.

The 3 pack batteries were sited on Spilt Hill, where they got direct observation, while the 6" howitzers fired from Tauda China camp.

The results were not very good; the 2·75s hit almost every time but only scratched the paint, and the 3·7 howitzers hit fairly often but as a rule only punctured the roof without doing any other harm. The 6" howitzers, of course, when they got a direct hit, did a lot of damage provided the shell burst, but nearly 50% were either complete duds or bad bursts.

The total damage done to Makin itself—the 6" howitzers spent a good deal of time on Salimkai, further up the Dara Toi—was 7 houses distinctly knocked about out of about 40.

I think this result was a surprise to most people as it is very hard to realize how extremely strong these frontier buildings are. Not only are the walls of mud and stone 2 feet and more thick, but the roof is carried on enormous beams, often 18" in diameter, and consists of strong poles and a foot or more of very hard beaten earth.

The aerial bombing afterwards was quite useless; only "Baby Incendiaries" were available, and they are intended for burning crops, not villages. I believe that some tins of petrol were also dropped and that they burnt well; there was not enough timber exposed however for this to do any damage.

I may perhaps add that the Wing Commander never expected that this bombing would do any good.

Conclusion.—This was the end of the destruction. We still had up our sleeves the complete destruction of all retaining walls to fields, of rock water channels, and of the remaining fruit trees.

The villages of Kut, Bozam and Bazam were friendly—or at least, to use the new and more accurate epithet brought in by Wazirforce, neutral. It was decided that there was no such thing as a friendly Mahsud.

The work done was enough to cause the Abdullai, who were the most important clan, to throw their hands in at the jirga which followed soon after. The G. S. O. I. of Wazirforce, in a letter to me after I left, described them as "crawling."

Our total casualties were only 42 killed and 95 wounded. Theirs are unknown: over 60 were actually counted.

Lessons.—I think the small butcher's bill is a very good 'chit' for the troops engaged: had they not been highly trained, we should certainly have had every Mahsud in the country out against us.

The chief points of interest from an engineering point of view are, I think :—

Firstly, that at least twice as much defence material is needed as is expected,

An estimate of the amount that would probably be required was prepared by the Staff. We nearly doubled that amount, and yet, if the 7th Brigade had not brought a lot down from Razmak with them, we should have been hard put to it.

The estimate was made out partly from the map and partly from the records of Gen. Skeen's operations of a year or two before, and personally, though I did not tell the Staff so, I thought it would probably be enough. As I say, it was not enough by 100%.

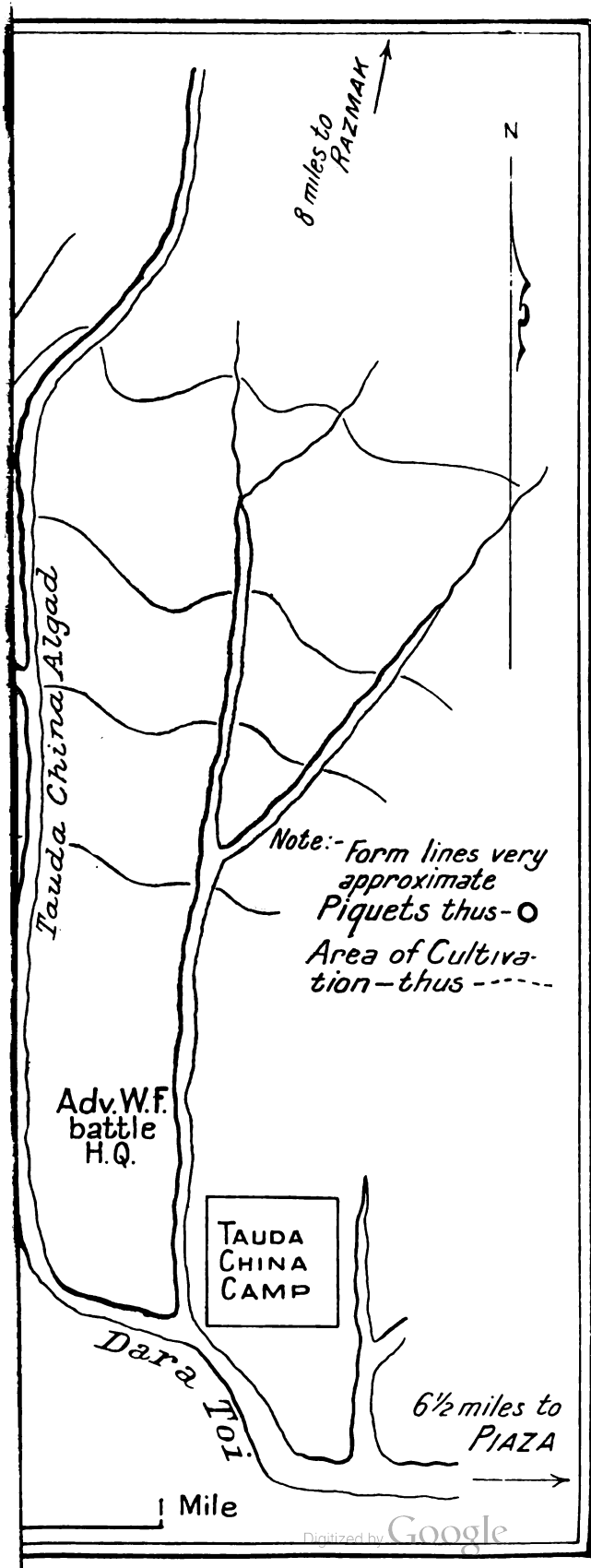
And, if only transport can be obtained, it pays hand over fist to have enough, as piquets—passive defence—can be strengthened and so kept to a minimum. Had Q been able to arrange for enough transport, all the permanent piquets could have been reduced to about 2 sections; as it was, it was decided that they could not be smaller than a platoon on the average. Not only was the striking force reduced in this way by at least half a platoon per piquet, but all the troops employed in these piquets were rapidly losing morale and becoming victims to that most distressing and nearly universal complaint, that of becoming wirebound.

The next point is that the R. E. must be given as much information as possible, and plenty of aeroplane photographs.

About Azdi Khel, for example, absolutely no information of the kind the R. E. want was available at Wazirforce Advanced H. Q. The number of wives owned by the chief Malik was known with very fair accuracy, and estimates had been made of their ages, but the number of towers, and houses, and their sizes, were quite unknown.

Thirdly, that the R. E. need a lot of kerosene if they are to burn houses quickly and well, and that arrangements must be made for the I. A. S. C. to deliver to the C. R. E. and possibly for the transport of it afterwards. We were nearly let down by a supply officer not realizing the necessity of sending it up with the first convoy, although he had been told to do so.

The fourth point is that the working parties must be properly protected, and that the officer-in-charge of the demolition must be freed of all responsibility for defence.



Finally, and most important of all, that clear *written* orders published in plenty of time, are essential if the R. E. are to get on to work quickly.

It is not enough to have a conference of officers commanding: probably the infantry, who have been working over, and studying, the ground, will know at the end of the conference exactly what they have to do, but it must be remembered that the R. E. are often imported for the job from another brigade's area, and that they may not know the ground. They will not form a very clear mental picture of what is to happen next day, on hearing, for example, that the Nth Rifles will hold Bow Ridge, when Bow Ridge is only a brigade nickname for a certain feature, and not on the map at all, or, still worse, on hearing that 2 machine-guns will be sited "on the spur where the Blankshires had that mule hit yesterday."

It is not always realized, I think, how necessary it is for the R. E. to know these things. They must know them so as not to mask the fire of the protective troops, so that they may get up transport with stores, or send back transport with salvage, by the best routes, and finally, they must know them for that extremely important reason, the safety of their own skins.

THE COURSE OF FUTURE WARS.

By Major-General Sir W. E. Ironside, K.C.B., O.M.G., D.S.O.

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The following paper is an attempt to depict the probable course of future wars between states divided by a land frontier.

In 1914, the general belief prevailed among military authorities that a modern war would be of short duration. No nation had prepared for a long struggle. All efforts had been directed towards developing a quick mobilization and concentration, followed by a tremendous blow calculated to sweep all before it. The decisive battles of the campaign were expected to commence about the 15th day of mobilization. Financial authorities supported the military authorities in thinking that a modern war would be short, stating that European nations had become so interdependent that none could bear the strain of lengthy operations. Many even declared that for this very reason war was now impossible. A campaign of about the length of the Franco-German War of 1870 was generally predicted.

Germany, France and Russia each delivered a great blow. In each case, in varying degrees, the force of the blow was met by the opponent and parried. Static warfare then ensued, owing to the superiority that had been gained by the defensive over the offensive, and the impossibility of turning the flanks of the land forces through the employment of sea-power.

The German blow nearly succeeded. Its failure was due in a lesser degree to bad leadership, as was the case with the Russian blow, but in a greater degree to the fact that the strategical conception was too great for the administrative possibilities of the situation. Had these blows succeeded, the war would not have been a long one.

After the experience of the late war, every state has taken careful stock of its national resources, so that it may not be caught napping by a long campaign in future. No state will

risk again going to war without being prepared for a long one, but that is by no means to say that future campaigns will be lengthy. In fact, with the terrible results before them of a long war, upon both conquerors and conquered alike, we may be sure that a state contemplating war will strain every nerve to ensure success in as short a time as possible.

The question for us to consider is whether a great blow, carefully prepared in the light of past failure and supported by every modern invention that can be turned to military account, may not in the future be carried through to a speedy conclusion.

Let us try and picture the progress of a future war, where the main combatants are divided by a land frontier.

Each side will have a comparatively small air force, recruited upon a regular basis. Behind these regular air forces will be reserve air forces, drawn from the commercial aviation assets of the state. The object of each side will be to place all its air forces upon a war footing as quickly as possible, and to deal its opponent a great blow from the air before he is ready. The objective of this air blow will be to reduce the resources of the enemy in military material, so that he will not have the wherewithal to wage war, and to destroy his moral even to the stage of his not wishing to wage war. The air blow will be delivered against the government arsenals, depôts, communications, industries and troop concentrations by bombing them from aircraft. There are many authorities who maintain that all that is required is an air force of sufficient size to carry out such an attack in order to bring campaigns to a speedy conclusion.

There are many arguments against such an assumption. It is undoubted that destruction of life and material can be carried out on a huge scale by the air forces likely to be in existence in the future. This in itself should militate largely against lengthy wars. But, it is not to be contemplated that nations will concentrate solely on an air offensive in war, without perfecting their defensive arrangements. Gun-fire from the ground, artificial clouds, defensive fighting aircraft and dispersal of resources will render effective bombing results more and more difficult to obtain, and at ever increasing loss to the attacking bombers. An intense struggle

in the air will undoubtedly ensue. Most authorities are agreed that complete supremacy in the air, such as has been obtained upon the sea in the past, is not possible of attainment, owing to the vastness of the air. But, just as there is a waning power of offensive on land, so there will be in the air. The intensity of the struggle will die down from lack of pilots and machines, and periods of stabilization, at least, if not permanent stabilization, in the air will ensue. By this is meant that, though air forces will still be able to take the air on both sides, their strength will be so reduced, that neither can achieve decisive success in their offensive programme, remaining sufficient, however, to prevent each other from catching up the casualties in men and material they are suffering.

The power of modern air forces to reduce resources is undoubtedly, but the destruction of moral is another matter. The subject is a difficult one to discuss, since we have few data upon which to work. Undoubtedly there were panics in our great towns when air raids took place in the late war, and these air raids were infinitesimal when compared with those to be expected in future wars, but we must remember that the people had no idea of what was likely to happen. The fear of the unknown is always greater than the fear of the known. Amongst the disciplined troops, it was found that men accustomed themselves more and more to the appalling conditions of artillery and aerial bombardment during the war, and it is believed that this will also be so amongst the civilian population when once they realize that they will now have to suffer equally or perhaps more than the troops in the field. It is at least probable that, where there is racial hatred between the combatants, air action will have to be severe and continuous to achieve successful results against the moral of a people. No mere local lowering of moral will reduce a nation to submission, for people are wonderfully unmindful of the suffering of others. One calls to mind how troops joked when they saw their neighbours being subjected to a heavy bombardment, and the shelling of a superior headquarters was often treated as a matter for jubilation. It is conceivable that the indiscriminate killing of people in industrial areas, and such must occur in air bombing, may well influence the spirit of the people to renewed efforts, in order to conquer and punish the offenders. The only sure means

of reducing the moral of a nation appears to lie in a substantial reduction of the food ration of the population. If deficiency can be created, either by destruction or the prevention of distribution to the country generally, then moral will be lowered. To achieve such a result, time is needed, for food resources in agricultural countries are more widely distributed than military resources.

But the main argument against the termination of hostilities by air action alone is that states divided by land frontiers are unlikely to depend solely or even mainly upon air forces in war. No possible means of protecting their national existence will be neglected. They will therefore still continue to develop their land forces. Mobilization and concentration of land forces for a great blow on the land will certainly be hindered by air action, but here again defensive measures will be perfected. Reservists will not be collected in well-known barracks and retained there for long periods. Camps will be arranged for them, and these camps will assume more the form of positions in the field, against which air bombing will be less effective. Mechanical vehicles and all military resources for the land forces will be quickly withdrawn from their peace positions and distributed ready for offensive action. Every possible means of upsetting any pre-arranged peace scheme of bombing by the enemy will be adopted. Road concentration will be arranged to replace railway concentration, if such is rendered impossible through enemy air action.

A modern land army will be equipped with all the necessary adjuncts of war. It will have its own aircraft for reconnaissance, and the defence of its communications and personnel. It will have its mechanical vehicles to give it mobility. The distances such an army will cover in the future will be out of all proportion greater than those we have seen before. The German right wing advancing through Belgium and France covered 233 miles between the 13th August and the 2nd September, an average of 11 miles per day. A modern army might well be expected to double or perhaps treble this rate of progress. An invasion will therefore penetrate very quickly into the heart of a country. It may be said that the defender will have equal mobility and that he will be able to meet such an invasion with greater celerity than heretofore. But it must not be forgotten that an army suddenly

thrown upon the defensive and compelled to conform to its opponent's movement is forced to improvise, whereas the invader follows a long pre-arranged plan of action.

An invasion on land always produces great moral effect upon the country invaded, with its hordes of refugees flying in front of it, and its cries from the local authorities of the invaded districts. A great blow on land is the best means of completing the defeat of the enemy which has been commenced by the air forces, and such blows on land will undoubtedly be contemplated in future.

The timing of the air and land blows will be arranged in a combined plan. There will be no question of two separately directed efforts having no relation one to the other. The programme of air action will be calculated to produce the best results in the time available before the launching of the land blow. The land blow will be launched at the moment considered best suited for taking advantage of the situation created by the air.

If we take the late war, we find that the Germans started their great advance about the 11th day of mobilization, practically the same day as the French. We may take it that these dates will be accelerated rather than retarded in future wars, firstly, because of improved methods and the necessity for getting into field positions as quickly as possible to avoid enemy air action, and secondly, as will be explained later, because concentration will be carried out further back from the frontier for various reasons. If we allow some 2 days for the mobilization of the air forces, we then come to the conclusion that about 6 or 7 days of intense air fighting will take place. The population at large must be told what such action means, and every possible measure taken to minimise the effect upon resources and moral. These latter will consist in giving warning of coming attack, in keeping open communications and preparing to meet conflagrations and heavy casualties from bombs and gas. It is of the utmost importance that the people should not be surprised, so that panics may be avoided.

With the launching of the land blow the whole strategical aspect of affairs alters. It would be false strategy not to employ all armed forces towards the pushing on or checking of the

invasion as the case may be. The invader's main objective must be to preserve the momentum of his blow at all costs. The independent air forces will be withdrawn from their distant objectives and will concentrate against those which directly forward the invasion. The enemy must be prevented from meeting the invasion, by the destruction of his communications leading to the area of invasion and the breaking up of his troop concentrations. Enemy air action against the communications of the invading army must be prevented as far as possible by defensive air fighting. As regards the defender, his main idea will be to stabilize the fighting on land, in order to bring the invasion to a standstill. All his independent air forces will be concentrated against the communications of the invader.

When large air forces are co-operating with land forces, it is important to direct their operations to the best advantage. It is considered that they will be employed generally against the communications and rear services of the land forces rather than against the troops in front. It is unlikely that bombing or machine-gunning from the air will ever produce conditions equal to those produced by artillery and machine-gun fire from the ground in the late war, and we know that these did not stop the advance of troops in fighting formation. Air action against troops will be more expensive in casualties amongst aircraft than air action against their communications, and the results obtained against communications will be greater. Air action against troops should be confined to the attack of large bodies of troops in preparatory formations and of such targets as were presented by the Russians in 1914 in their retreat from the Masurian Lakes, and the Austrians in 1918 in their retreat from the Italian front. Just as with cavalry in the old days, air action against broken or demoralized troops will produce enormous results.

The objectives of the various great land blows carried out in the late war were varied. The Germans intended to sweep round the French left flank, driving the French army against the Franco-German frontier in order to envelop it. They kept their eyes fixed upon the French army, ignoring the Channel Ports and Paris. The Russians intended to envelop the small German army left in East Prussia and destroy it, thus forcing the Germans to detach forces from the main theatre of war in the west,

The objective of a land army remains the same as ever—the defeat of the enemy's armed forces, but the late war has brought two new factors into prominence. Both affect the route to be chosen for offensive action on the ground.

The first is one concerning industry. Many industrial centres lie close to the frontier of possible enemies. They are tied to the fields of coal and iron, and cannot be dispersed over the country for better safety. Advance on the ground will attempt to include such enemy centres in its progress. The loss of Briey to France would have been fatal, had she not been guaranteed the import of foreign material by the British Navy. The French occupation of the Ruhr has made modern war an impossibility for Germany, unless she can secure foreign material.

The second concerns air action. Air action can only be carried out to a limited distance. Improvements in aircraft are gradually increasing their radius of action, but the greater the distance of the aerodromes from the air objectives, the less will be the effect produced by the aircraft operating from them. At present 200 miles may be considered the extreme effective distance from the objective. Modern armies, with their great mobility, will try to arrange their advance so that enemy aerodromes may be driven further into their own country, thus reducing the effect of bombing in the home country.

It is true that both the Russian and German advances in 1914 in the late war had reached a point of exhaustion, without having met intense opposing air action, but it is considered that the increased mobility of modern armies will outweigh the stopping-power exerted by air action and that the strength of the offensive will prevent the occurrence of such long periods of static warfare as were produced in the late war.

The defensive, and especially the strength of permanent fortifications, having decreased in power, it is interesting to consider how states will attempt to prevent invasions in future. One French writer has recommended the commencement of the framework of a defensive line along the whole N. E. front of France. He has calculated that 440,000 men would be required for its defence, and that its cost would be 2 milliards of francs at pre-war rates. The writer points out that France mobilised 3,800,000

men in 1914, and that 440,000 is only a small proportion of this number. He further says that the loss to France through the German invasion was many times greater than 2 milliards of francs. In the impoverished state of the world, no nation would contemplate such expenditure. But, quite outside the question of expense, no such linear defence can be effective in reality. It is liable to be broken at any moment by a modern offensive, when the whole system becomes useless.

All nations must, however, adopt some kind of defensive screen, behind which they can carry out their mobilization and concentration. It would appear as if the strength of the offensive and the greater mobility of modern armies will in any case force them to concentrate further back from their frontiers in order to be safe from sudden attack. There will therefore be a greater distance to cover when the advance commences, in order to reach enemy territory. This should, however, be counteracted by the greater mobility existing.

The first thing which strikes one in this question of delaying an invasion, is the power of demolitions to stop a mechanical army. For many years to come, owing to the non-commercial nature of tracked vehicles, armies will depend upon wheeled mechanical vehicles for their mobility.

Even in 1914, the Belgians slowed up the German attack on Liege to the pace of their infantry by hastily improvised demolitions. The Germans in their retreat of 1918, carried out systematic demolitions of bridges and cross roads to such a degree that mechanical wheeled vehicles were out of the question. In the advance to the Rhine, the British army was probably as short of supplies as it ever was in the war, and that when hostilities had ceased. The systematic preparation of demolitions by a nation realising its inferior power of mobilization appears to be the best solution to the problem of delaying the enemy, but there are many difficulties and objections. The geographical location of such demolitions is simple, after a general plan has been made out. There can be no question of a continuous line of demolitions all along the frontier, for it would then be equally impassable to the counter-offensive, by which alone victory can be gained. Demolitions, therefore, must be confined to certain areas, leaving others free for manœuvre. These manœuvre areas must be defended

by other means, such as frontier troops upon a permanent war footing, or gas. Even with demolitions confined to certain areas, how will the frontier population regard the matter? Any outward and visible signs in peace-time of the abandonment of an area to the enemy will raise an outcry, and the prospect of deliberate destruction by their own authorities will be steadily opposed. There are also practical difficulties. Large quantities of explosives will be required. If maintained in a "ready" position, deterioration will be high, and the yearly turn-over to keep things ready for action will be great and consequently expensive. It might be possible to arrange for storage near the points at which the explosives are to be employed, ensuring the placing of them in position by sowing in peace-time ex-N.C.O.'s in small government positions in the neighbourhood, as a permanent control. There will always remain, however, the danger of individual failure through carelessness or traitorous conduct.

The next thing which strikes one is the defensive power of gas, especially of persistent gases such as mustard gas. The employment, of noxious gases has been limited by international agreement, but apart from the fact that all nations are not parties to the agreement, it cannot be assumed that authorities will not adopt every conceivable measure to maintain their national existence.

Another means of preventing invasion will be by inundation. The Belgian inundations in the north undoubtedly saved the situation in what has been termed the race for the Channel Ports in the late war. In suitable country much can be done if a proper programme is thought out beforehand.

Weighing all these considerations, it is considered that, given an aggressive state such as Germany, prepared to go to any length to achieve success, a great land blow has a greater chance than ever of succeeding, through the surprise that it will create.

The e is one point of considerable interest, which will require great thought in future. Up to now, all initial campaigns have been timed by states to commence in good weather, so as to gain the advantage of long days and good harvests. But, with the advent of large air forces, it is to be considered whether the land forces would not be better advised to seek the period of short days

and bad weather, so as to minimize the effect of air action as much as possible. Air action will certainly be affected more adversely by bad weather than operations on land.

The next thing to consider is whether such initial blows, having broken the enemy's armed forces, will really bring hostilities to an end. Is it not possible that the enemy's country may be so broken by the force of the air-bombing and the invasion, that chaos may result? Failure in war leads to a certain overthrow of Government. If conditions become very bad, violent revolutions supervene, all authority disappears and there is no one with whom to negotiate. Guerrilla warfare may then be expected. This form of warfare is abhorred by all soldiers, and we have numerous examples of lengthy guerrilla campaigns. As a rule they depend for their success upon the inhospitality of the region in which they are waged. Spain in 1800 was inhospitable, and the Spaniards were supported by the British Army. South Africa in 1900 was short of essential communications, if not actually inhospitable. Both countries were sparsely populated. Countries such as Germany and France could not long sustain guerrilla warfare, though Russia conceivably might do so. Still, the advent of mechanical vehicles, armoured and unarmoured, and of aircraft, has facilitated the overrunning of a country, and simplified the suppression of guerrilla warfare, except in exceptional terrain and climates. It is therefore considered that any civilized country is less likely than ever to continue a campaign after its armed forces have been scattered.

The argument has been advanced that air action will so reduce the resources on both sides that land armies will not be equipped with all their necessary modern adjuncts, that offensive weapons and ammunition will be so scarce that the defence will again have the upper hand, and that mobility will disappear. If the will to fight still exists under such conditions, then wars may indeed become a stalemate between two exhausted opponents. We shall have gone back to the condition of the Hundred Years' War. Is such a picture possible with the certainty that some manufacturing countries will be left out of the struggle, and that they will be available to supply one or other or both of the combatants with their military needs?

PROTECTION ON THE MARCH, MOUNTAIN WARFARE.

By Colonel C. A. Milward, C.I.E., D.S.O., General Staff, Waziristan District, late 3/12th F. F. Regiment (Sikhs).

I have read with much interest the article in your July number, by Colonel Kirkpatrick, "Some thoughts on frontier fighting."

I think we are all of us agreed on the increased difficulty mentioned by him in coping with the frontier tribesmen in his intricate country, armed with modern weapons.

It is with regard to the last part of his article in which he refers to the so-called "block" or "battalion and company sector" system, that I would make a few remarks. This system has lately become a matter of great controversy, and it is hoped that if one side of the question is put forward in the following pages, some strong advocate of the other side will answer in this Journal.

Last winter, an interesting discussion was aroused in Waziristan over this very system. One Brigade Commander who had used this system during his advance to and retirement from Wana in 1923, strongly advocated it. The matter was passed round for the opinions of the other 5 brigades at that time quartered in Waziristan. These contained some of the most experienced officers in frontier warfare in the Indian Army. One other brigade was in favour of this system of advance and retirement. The other 4 brigades were generally opposed to it, although they all fully realized that on occasions it might be usefully employed. It was generally considered that it can be employed when the troops know the country well, but it was thought that, normally for ordinary marches in an unknown country, the old system is the best.

Various Methods.—For instance, at the present time, the troops of the Razmak column in its periodical marches seven miles down to Tauda China and back, use the battalion block

system, but, when the column moves down the Takki Zam to Jandola and to Sarwekai, they employ the old permanent advanced guard and permanent rear guard system throughout the Brigade. They are strongly in favour of this.

Again, when the 7th Brigade retired from Datta Khel in 1922 over the Spinchilla Pass, the battalion block system was employed over ground which they had picquetted daily for the preceding three months. Each battalion had a permanent rear guard throughout its battalion sector. Company sectors, with their rear guard of one platoon, were not employed, for reasons that will be explained later. The Brigade Commander also insisted on and laid down by name in orders a definite battalion as reserve to each battalion sector or block, which would not go forward until each battalion sector was cleared.

The following day, in the retirement of the brigade from Mohammad Khel to Miranshah, a 14 mile march in difficult country with high spurs from the north projecting on to the road throughout the march, an alternative system was adopted. The march was divided into battalion sectors beforehand and commanding features in these sectors were occupied during the previous night so as to forestall the enemy who were reported in large numbers along the Khost border on the flank of the line of march. A permanent rear guard of half battalion was detailed to act as such throughout the whole march. The rear guard commander authorised the battalion commander as he came into each battalion sector to withdraw his piquets as the march progressed, the rear guard conforming.

It will be seen from the above that there are several alternatives which can be adopted in this form of mountain warfare tactics, as there are in all tactics. It is a mistake to make any tactics too stereotyped.

Normal Methods Applicable.—On the other hand it is contended that it is a great mistake to make mountain warfare too specialised and too hide bound by rules in which only troops specially trained in this form of warfare can successfully participate. The general tactics of the British Army as laid down in Field Service Regulations should be applicable to all warfare.

In open warfare, advanced guards and rear guards are detailed permanently throughout the line of march. An officer is especially detailed in order to command these bodies of troops, because it is considered a responsible duty, which a senior officer should be called upon to perform.

Failings of the Company Block System.—The company block system fails in this, as in other points. There is no such responsible officer. The responsibility for the rear guard is handed on from one company commander to another as each company passes through the company behind it. It must be remembered that, at the present time, company commanders are not as senior as they were before the war, nor have they the requisite experience. It is no easy matter to bring in one's piquets at exactly the right moment or to withdraw the extended parts of a rear guard in perfect co-operation and mutual support. Any one with experience on the frontier will remember many occasions on which piquets have been called down or have come down prematurely and have thus imperilled the rear of the column.

The ground at a great distance from the line of march, on occasions, has to be held, and, in such instances, the company frontage as a thin rear-party line will be too great for a company commander to control.

With regard to the strength of the rear guard, it is contended that one platoon per company in rear is of insufficient strength, even although there may be another platoon per company in reserve, and a complete company in reserve behind it in the next company block some mile distant, since it is stated that the Battalion will cover 3—4 miles.

It is the writer's experience that attacks and surprises happen very quickly in the mountains and there is no time to bring up reserves from far back. They must be close at hand to be of use.

One has only to compare diagram 2 and diagram 3 of Colonel Kirkpatrick's article to note the strength considered necessary for the rear guard under the two systems. In diagram 2, two whole

companies are disposed under the old system in position to cover the retirement by mutual support. In diagram 3 there are 2 platoons about $\frac{1}{4}$ mile apart, with 2 in reserve, and a reserve company in the next company block.

I do not know of any instance when the block system has been tested in really hard frontier fighting. In the retirement down the Bara valley in 1897, as far as can be remembered, there were one or two whole battalions on rear guard, when the Afridis, flushed with success, followed up the rear guard very closely and fought the troops almost hand to hand. I do not think the company block system would stand such a test.

It may be argued that the whole of the rear battalion is rearguard as soon as the column of transport has passed through. If this is the case the rearguard battalion covers 3—4 miles in depth and a frontage of perhaps a mile—not a very formidable fighting force.

Any block system must be uneconomical in troops, since each block, battalion or company, has its own rearguard.

It is also apt to be a slower method of movement, since delays will occur when handing over the rear guard.

Occasions will occur also when rear guard and reserves will be very weak at the end of each battalion block unless special precautions are taken to obviate this.

Old System Normal.—It would seem that the old system of a permanent advanced guard and rear guard throughout the brigade, or at least throughout the battalion, should be maintained as the normal method. It is laborious and unsound to take up battle dispositions on every march in mountain warfare, and this the company block system in reality constitutes, for it is nothing more or less than successive lines of rear guard positions. Many marches will be carried out in tribal country when no enemy will be encountered, but if strong opposition is met with, battle formation can be quickly adopted. The normal march formations of advanced guard and rear guard laid down in the F.S.R. for mountain warfare would seem to meet most occasions. Further, if the Blocks have to be laid out on the map before the march, a

very difficult thing to do economically, few troops will be left at the end of the march to carry out any operation which may be necessary.

Occasions for Blocks.—The battalion block system with battalion rear guard will, however, be useful on occasions, such as when a column moves out a short distance from the camp to destroy some villages and returns the same day. In this case the piquets would be left up to cover the return march. The withdrawal should not, however, be held up from company to company while the commanding officer gives his permission for each company to retire. The withdrawal must be automatic and carried out as quickly as possible. The battalion commander must be in close support of the actual rear guard with his reserves, where he can keep his finger on the pulse of the action and influence the fight.

In reality the two systems do not differ very much. With the old system, each battalion occupies the ground on each side of the route and each battalion is posted as economically as possible to cover the maximum of ground, while keeping in hand adequate supports to meet any enemy action. This is in reality, except for the rear guard, a battalion block system and there is nothing new.

For special operations, such as putting up permanent piquets or the occupation or outflanking of specially difficult features, special dispositions would be made.

Artillery.—As regards the Artillery in mountain warfare, it is not considered that artillery can be detailed to blocks. This would be uneconomical and there would be insufficient artillery to meet requirements; nor does it seem sound. It is also considered that artillery should not be detailed as part of the rear guard. The rear guard commander should have a F.O.O. with him to ensure quick communication of targets to the batteries, but it is thought that the artillery supporting the withdrawal should be under the C.R.A. He would dispose his guns in echelon to ensure that some guns are always in action and give adequate support, while the rear guns do not delay the withdrawal, which, otherwise, is very apt to occur.

Vickers Guns.—Vickers guns are a very great asset in mountain warfare, and are more feared by the tribesmen than are Lewis guns or indeed it might even be said, than the mountain gun, as opposed to the howitzer, and in corresponding degree they have gained the confidence of our troops. Two Vickers gun platoons can be disposed of, with advantage, in the rear guard, thus necessitating temporarily, the brigading of Vickers guns. They are very quick to come into and go out of action, and they can fill up the gaps between artillery lines of fire under good organization.

Mobility.—Latterly our mountain warfare tactics have degenerated into slow and methodical advances and operations, almost pertaining to trench warfare methods. It is realised that we must train our troops to more mobile methods, as used to be the case, and, on occasions, for the movements of lightly equipped columns moving over the hills and meeting the enemy at his own game.

Permanent L. of C.—On the other hand the old policy of run and scuttle did not bring off any lasting results. In evidence of this, one has only to compare the state of the Frontier now with what it was 20 years ago. Our policy in 25 years has not effected very much, though no doubt, this is largely due to the increase in arms among the tribesmen. When certain villages have to be punished, or a permanent L. of C. is required, a line of communication secured by permanent piquets is of great advantage. The column then, fed by its line of communication, can stay in the enemy's country as long as it likes. It need not necessarily carry out destruction, but it can impose its will on the tribesmen and this certainly prevents them from considering they have gained a victory over us and driven us out when we withdraw, as invariably happened before. It can withdraw at its leisure. In November and December 1923, the regular troops withdrew down the Takki Zam from Piazza to Jandola after the occupation of that country since the spring 1920, without a shot being fired.

The Use of M.T. Roads.—No article on the modern conditions of mountain warfare would be complete without a word on the use of motor roads on the Frontier. It is hoped that in time they will have the same civilizing influence on the Mahsud and on the Wazir as they have had on other races,

So long as the troops can operate along or from the road, the use of an M.T. Column in place of the long, slow, unweildy camel and mule convoys is a great blessing. The tribesmen have never yet attacked an M.T. Column and have not discovered its vulnerability. Roads, too, allow of the use of armoured cars which can either go on ahead of the advanced guard and turn a hostile position, or can cover the rear of a rearguard most effectively so long as they work in pairs and do not drop too far behind. Armoured cars have a great moral ascendancy over the tribesmen and it is no matter of surprise that this is so. They are tied to the roads, but the day will come when their place will be taken by tanks which will require no roads and which will be able to perform the functions above described and many others, along any frontier track or nullah bed. The supply tank and the supply aeroplane will solve a multitude of difficulties.

THE TACTICAL WITHDRAWAL BY NIGHT.

THE LESSON OF GALLIPOLI.

By "Skander Bey" (vide map, page 102).

1.—INTRODUCTION.

The British evacuation of the GALLIPOLI Peninsula, in December 1915, and January, 1916, has been characterized by a German writer as a "hitherto unattained masterpiece." Marshal Liman von Sanders, the Commander of the opposing Turkish forces, bears testimony to the "extraordinarily able manner in which the withdrawal was carried out."

When asked by the British Government regarding the question of an evacuation, Sir Ian Hamilton stated that it was "unthinkable." Highly placed officers estimated that the operation would cost some 50,000 casualties. After the event, in which our only losses were a few men wounded and a somewhat large quantity of material and animals, it was openly rumoured abroad that the Turks had been bribed not to interfere.

Recent publications on the enemy side now throw some light on the matter and it is possible to supplement the story with reasons for the Turkish failure to detect what was happening.

2.—THE PROBLEM BEFORE THE BRITISH AND THE BRITISH MOVEMENTS.

In the ANZAC and SUVLA areas were some 83,000 men, 5,000 animals, 2,000 carts, 200 guns and 30 days' supplies. In the HELLES zone were 40,000 men, 4,500 animals, 1,200 carts, 150 guns and a large quantity of supplies. The problem of withdrawal was rendered more difficult by the fact that the British Government wished to retain its hold on the toe of the Peninsula, after withdrawing from ANZAC and SUVLA. The Turks would thus be warned and it was realised that the evacuation of HELLES, if ordered later, would be increased difficulty.

The story of the evacuation is well known to British readers. The enemy in the northern areas were deceived by the gradual thinning of the line; by the periods of silence imposed on their troops by the British command, when not a shot was fired and not a movement made; by increased fire from single guns in position where batteries once had been. The enemy was lulled into a feeling of security and by December 19th the British forces ashore had been reduced by three quarters. All unnecessary animals and impedimenta had been previously evacuated. The final withdrawal from ANZAC and SÜVLA was carried out with the loss of five men wounded. By dawn on the 20th December every man had left the Northern front of Peninsula.

The problem was more complicated at HELLES, the withdrawal from which had been sanctioned by the British Government early in January. The same precautions were taken, but the enemy was more aggressive. His patrols were bolder and he had the advantage of observation posts on the Asiatic shore. The British positions were, however, particularly strong, as the flanks rested on the sea and naval guns could cover the front from three sides. There was little chance, therefore, that the line could be rushed, unless the enemy launched an offensive in the last hours of the withdrawal. For this reason 17,000 men and 35 guns were left on shore till the last night.

Again the Turks were completely deceived. By the morning of January 9th the Peninsula was clear of British troops with the loss of one man accidentally killed and one man wounded. Good weather throughout favoured the operation, which would have been disastrous if westerly winds had sprung up.

3.—THE PROBLEM BEFORE THE TURKS AND THE TURKISH MOVEMENTS.

The question of the possibility of an evacuation by the British had not been neglected by Marshal Liman von Sanders. In his memoirs he quotes a telegram sent by Mr. Chamberlain to the Viceroy of India on October 21st, 1915, in which the situation in GALLIPOLI was not viewed in optimistic terms. At the same time German General Headquarters informed him

that a new landing was probable about November 1st, and news from BERNE stated that the passage of the Straits was to be forced by the navy.

But the Marshal judged that neither of these two events would take place. He knew that the British had suffered severely in the fighting of August at ANZAC and SUVLA; that their position was without depth on a foreshore which would be swept by westerly winds in the winter; that the Turks securely held all the high ground and consequently all the observation posts.

On the Turkish side things had taken a distinct turn for the better. In November arrived the long expected artillery ammunition from Central Europe. Up till then the Turkish guns had been strictly rationed, but "now" says Liman von Sanders, "our hopes of bringing the campaign to a successful conclusion were much increased." On 15th November arrived the first unit of reinforcements from the Central Powers. This was a complete 24 centimetre Austrian battery with motor transport. It was followed by a 15 centimetre Austrian battery in December.

At the end of November plans were put in hand for a big surprise attack on the centre of the ANZAC-SUVLA zone. Should this be broken it was believed that the flanks would withdraw or be captured. Turkish General Headquarters had promised the necessary reinforcements from the Second Army and technical troops were to come from Central Europe. Special officers were sent from Germany to carry out reconnaissances and make the administrative arrangements. Divisions were withdrawn gradually from the line to practise on assault courses in the back areas.

It will thus be seen that Turkish Headquarters was by no means supine—ready and thankful to see the last of the British whenever the latter chose to go. The probability had been studied by Fifth Army Headquarters, and all Commanders had had their attention drawn to the matter.

4.—THE WITHDRAWAL FROM ANZAC.

On the night of the 19th/20th December a huge mine was exploded by the British at 3-45 A.M. in the ANZAC zone. Following a standing order the Turks immediately rushed forward and

occupied the crater, encountering no resistance. Neighbouring units, which advanced to the British front line, were met with intermittent rifle fire. This was caused by automatic rifles which had been left in position by the British. When it died down the trenches were occupied by the Turks.

This occurrence was communicated to "the Senior officer on the front." The Peninsula was enveloped in a thick fog at the time. No special arrangements had been made for communications if the enemy was discovered to have withdrawn. "Thus," says the Turkish Commander, "some time naturally elapsed before the Commander's arrival at the front and the issue of orders for a further move forward." The advance was much hampered by wire obstacles and automatic mines which caused serious loss. When the Turks arrived on the beach the last British soldier was afloat.

Liman von Sanders himself received the first rather uncertain news a little before 4 A.M. He immediately ordered all troops to stand to arms. The cavalry and reserves were put in motion and every unit in the front line was ordered to advance to the shore directly to its front. But these orders had to be issued and written in two languages and they were not carried out as quickly as was hoped. The troops opposite SUVLA suffered severe loss in passing over some open ground sown with mines, but it was claimed that the 126th Regiment exchanged shots with the British rearguards.

5.—COMMENTS.

What were the reasons for the Turkish failure to pursue effectively?

Firstly, the intelligence system among the fighting troops was bad. Throughout the early part of December, only one reconnaissance patrol was sent to the British front line and had been badly mauled. The periods of silence referred to above were not regarded as significant of anything but a desire for rest on the part of the British. When the Turks carelessly issued from their trenches, they were greeted with volleys from their watchful enemy and they hastily retired. The Turks evidently had little system in making observations and transmitting information. "It is the duty of all ranks to report anything

noticed which appears to have any military value, however trivial it may seem to the casual observer." (F.S.R. 69·6.) Yet the fact that British batteries had ceased their accustomed fire and that other batteries were firing with single guns had been remarked by several Turkish artillery commanders. A little before the evacuation several batteries had been seen to change their positions or had ceased firing for one or two days. "But no significance had been attached to these facts and higher commanders had not been informed!"

At ANZAC junior commanders in forward posts saw red lights on the shore and imagined that stores and men were being landed. Again this was not reported, as it was thought that ordinary routine movements were being carried out. Turkish officers are notoriously out of touch with the rank and file and they evidently neglected their duties at this critical stage.

There is no doubt that the fog exercised a considerable influence on the pace of the advance, though its existence is not mentioned in British accounts. The ground on the Turkish side of the front line was unfamiliar to the Turks, and well placed wire obstacles and automatic mines added to the confusion and slowness of the advance. Nevertheless commanders showed great lack of initiative. They awaited orders from their superiors and these orders were slow in coming owing to bad communications. The Turkish army was especially ill-equipped with telephone instruments which all came from Germany.

The Fifth Army Staff was, of course greatly to blame. Though it is primarily the work of the fighting troops themselves to collect intelligence data, it is the function of the Staff to organize the systems of collection, collation and distribution. It is evident that, at this stage of the campaign, the Turkish troops had greatly deteriorated, and Liman von Sanders appears to have relied more and more on the arrival of men from Germany and other theatres.

Reading between the lines of his memoirs one can see that he was losing faith in his Turkish troops for all offensive operations. His staff had its attention fixed on the plan for the coming offensive and neglected the events on the front.

6.—THE BRITISH WITHDRAWAL FROM HELLES.

The British now faced the Turks in the HELLES zone only. The plans for the Turkish offensive on the Northern front was amended. It was decided to attack at HELLES with eight divisions but technical troops were to be awaited from Germany.

During the first days of 1916 the British batteries were seen to be gradually withdrawing.

Some batteries had only one gun which would fire from several alternative positions. On the other hand it was observed from the Asiatic shore that the number of naval guns had been much increased behind the SED-EL-BAHR front. However, patrols sent out during the night and evening always encountered stiff opposition in the British trenches. Meanwhile the best bombers, scouts and batteries had been transferred from the Northern to the Southern zone. Units, trained for the attack, began to collect behind the HELLES front. On January 7th, the 12th Division was ordered to make a preliminary attack on the British left to flatten out a salient which was causing trouble to the Turks. But the attack proved a failure. The British maintained their positions without the help of a brigade at MUDROS which was standing by ready to reinforce the front.

The Turks had been ordered to pay strict attention to any signs indicating a withdrawal. Portable bridges were made to facilitate the passage of guns over the British trenches. Three batteries were pushed up to KUM KALA to search the British communications to the shore.

On the night of the 8th/9th January the British slipped away. "In spite of all our precautions," says Liman von Sanders, "the enemy was completely successful in his retirement." When it was found that the British did not reply to the Turkish fire, the Turks immediately pushed forward. It was claimed, though not corroborated in British accounts, that sanguinary encounters took place with rearguards,

7.—COMMENTS.

Again, what were the reasons for the Turkish failure ?

The attack on January 7th had been repulsed with heavy loss. Human nature asserted itself, and in spite of all orders, patrols could not be persuaded to verify the existence of an enemy who had so lately given such a good account of himself. Turks complain that Liman von Sanders was wasteful of life in ordering attacks on heavily entrenched positions. Continuous trench warfare and a lower standard of training had sapped the moral of the troops in the line. The best formations had been withdrawn to practise for the coming offensive. The remainder were frankly averse to active operations of any sort. The artillery, which alone could have exercised a most destructive effect on the retirement, had no communications to the front, and was therefore out of touch with the situation.

In the middle of its preparations, when the Fifth Army was busy watching its enemy and completing its arrangements for the attack, Enver Pasha ordered the 9th Division to be sent to THRACE. In this formation were several units which were being specially trained as storm troops. Liman von Sanders expostulated and finally threatened to resign his appointment in the Turkish army. Upon this the matter was dropped. Army Headquarters was evidently more intent on its own preparations for the offensive than in perfecting its intelligence system. Though the enemy certainly acted with greater dash than in December, they were quite unable to influence the British retreat.

Marshal Liman von Sanders points out that the British withdrawal from GALLIPOLI does not rank with the extensive retirements of European theatres, since the most advanced British troops, in the Northern zones, for instance, were only 1,000—4,500 yards from the shore. If the evacuation of the Peninsula had been carried out in one night, there would be something to say in support of this statement. The history of the late war affords several instances of successful withdrawals unknown to the enemy, *viz.*, the Turkish withdrawal from HANNA in April 1916, the Turkish withdrawal from the position covering BAGHDAD in March 1917. In the former the British

attacked the vacated trenches next morning. In the latter case, patrols followed the enemy within half an hour of the information coming to hand, but the retreating columns were never caught up. Again, it was well known that the Germans were contemplating retirement to the Hindenburg line in 1917. Yet the Allied forces were surprised when the movement actually took place.

It seems therefore that to disengage from an enemy in the hours of darkness is not a difficult operation. The chief characteristic of the retirement from GALLIPOLI lies in the fact that it was carried out over a period of several days, and was completely successful on two consecutive occasions.

Opinions differ as to whether surprise in war can be as easily effected to-day as in past times. It must be remembered that human nature remains much what it always was, and, while troops can become negligent, exhausted, depressed in moral and inferior in the use of their arms, the most modern inventions will be of little avail against surprise, "that most effective and powerful weapon in war."

8.—CONCLUSION.

How then is the problem to be solved?

How can one force be prevented from disengaging itself unawares from the other?

Our training manuals show that the solution lies in a good intelligence system, early information, rapid means of transmission of information, and initiative on the part of the troops.

1. *Intelligence System.*—The bulk of the responsibility for collecting information falls upon the troops in contact with the enemy. "All ranks should appreciate the importance of assisting the General Staff to the utmost of their powers in the essential duty of collecting and transmitting information." It is for the staff and commanders to organize the intelligence system so that information can be acquired, collated and distributed.

2. *Early Information.*—"The value of information depends on whether it can reach the authorities concerned in time to be of use." (F.S.R. 69(9).) Much of the information acquired in the

operation under discussion will be of a disjointed character, possibly collected during a prolonged period. Subsequent collation and distribution will take time and at the critical moment troops may have to act on the very earliest information available."

3. *Communications.*—In spite of the enormous developments in our means of communication, experience in the late war shows that information is always slow in coming back from the foremost troops engaged. To keep close touch with an enemy who is suspected of intending to withdraw, it is essential to have reliable communications from the most advanced troops to the nearest reserves and responsible commander.

An interesting example of the reverse of the operation under discussion is afforded by the late war. It was known that a German attack was imminent in CHAMPAGNE against the Fourth French Army under General Gouroud. The 366th regiment of infantry was ordered to make a raid to discover the enemy's intentions. The operation was carried out at 7.55 P.M. on July 14th. It was discovered that the enemy's attack was to be launched next day at 4 A.M., after a bombardment commencing at midnight. The elaborate system of communication previously arranged enabled Army Headquarters to receive the results of the raid without delay. The whole front line system was evacuated without the enemy's knowledge. The German blow next day fell on empty trenches, and the enemy suffered heavy loss in their assembly positions owing to the discovery of their plans. The operation of withdrawal could not have been successful without the most careful attention to communications, since less than three hours were available for the issue of army orders to the most advanced troops. The utmost care must be taken to utilise every available source for the rapid transmission of all information to the quarter where effective action can be taken upon it. Existing communications arranged by the signal service should be made use of whenever possible, but it is necessary to guard against their being overloaded. No subsidiary means which forethought and ingenuity can suggest should therefore be neglected.

4. *Initiative.*—We have seen how the Turks waited for orders when once they reached the British front line, only to find them empty. In such an operation it is not only of supreme importance to establish contact at once, but also to maintain it at all costs. "The pursuing troops should act with the greatest boldness and be prepared to accept risks which would not be justifiable at other times." (F.S.R. 123(5).) Whereas the higher formations are obliged to pass on the results of their observations to the various arms before action can be taken by the latter, the battalion will often be able to take instant action itself in conjunction with the various arms actually on the spot.

In his summary of the operation General Sir C. Monro states :—

"The operation demanded for its successful realisation two important military essentials, *viz.*, good luck and skilled disciplined organization, and they were both forthcoming in a marked degree at the hour needed."

There is little doubt that, if the Turks had watched their enemy closely and fought intelligently, the story of the evacuation would have been very different.

THE INDIVIDUAL TRAINING SEASON.

*By Capt. N. Hugh-Jones, M.C., 3/12th Frontier Force
Regiment (Sikhs).*

Consideration of the subject selected for the annual prize essay of the United Service Institution (India) suggests that the moment is not inopportune for presenting a difficulty other than excess of office work encountered by the Regimental Officer in his efforts at training his men for war.

The difficulty.—The difficulty is this. In some stations a Company Commander finds it impossible to get hold of his men to train them. For reasons enumerated below it is impossible to get a whole Company on parade every day for a definite period, and the men have to be trained in “dribblets” which multiplies work.

After arranging his programmes of work and selecting the most suitable men for various branches of specialist training, each Company Commander in turn finds he is prevented from carrying out fully his projected schemes because his Company parade amounts to a total of some 30 or 40 all ranks instead of 130, as it should. The balance are on guard, drawing rations, are sick, on leave, or on furlough, in fact anywhere except on parade.

A close scrutiny of the parade state confirms the statement of the Havildar Major that the men are otherwise engaged. In addition to the above, station and regimental police, cook's assistants, men in segregation, training cadre classes, all have claimed their pound of flesh from his Company, and he is left to toy with the bare bones.

The Training of a Company of Infantry is a far more complicated and difficult task than it was in pre-war days. The introduction of the light automatic and the pistol for certain of the personnel of the teams, the bomb, and the rifle bomb, has necessitated the training of a large number of specialists in the

company in addition to putting every man through an annual refresher in drill, physical training, bayonet fighting, skirmishing and handling of arms.

Further there is the higher training in leadership and tactics of the Indian Officers, and Non-Commissioned Officers, by means of the sand model and Tactical Exercises without Troops which requires forethought and preliminary preparation.

The time of the Company Commander will therefore be well occupied. If he is to give as much time as he should to the training of his Company, it is absolutely necessary that time should not be wasted in duplicating work owing to the fact that the whole Company cannot be put at the disposal of its Commander at the same time.

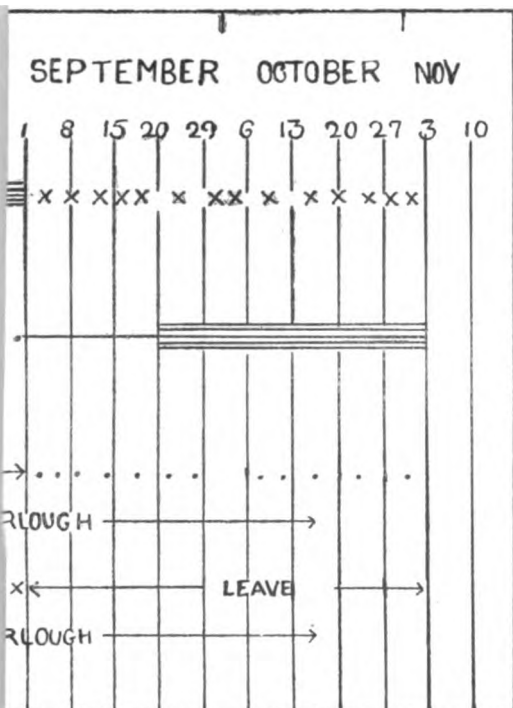
Unless this can be done, and the complete Company put at the disposal of its Commander for a definite period, in addition to the period for which it is relieved of all duties for weapon training, there is little hope that the individual training of the soldier in all the other branches of his art will be as complete and efficient as all interested would like to see it. This axiom is clearly laid down in I. T., Vol. I, Ch. I, Sec. 6, Para. 5.

What then are the difficulties in arranging that a complete Company be daily available for parade for a given period?

They are as follows, and though particularly applicable to a Regiment in the Kohat Area, must nevertheless, some, or all of them, in a greater or less degree, be applicable to all Infantry Units in India:—

- A. Furlough.
- B. Heavy guards and duties.
- C. The difficulty of holding Training Cadre Classes at a time when the N.-C. O.'s are not also required to instruct their own men.
- D. Granting of leave in months instead of in weeks, and the necessity for segregation of men for 10 days on their return from leave.

The furlough season varies, as does the leave season, in various parts of India, but in Kohat, furlough is open for two periods of $3\frac{1}{2}$ months each, and leave for 9 months, allowing four consecutive periods of two months each.





A third of the battalion must go on furlough each year to enable every man to get his furlough once in three years, that is to say that $\frac{1}{6}$ th of the battalion must be away in each of the two furlough periods of any one year, *viz.*, $762/6 = 127$.

On leave 11 per cent may be away at any one time, *i.e.* 84.

But from this an allowance of say 4 per company and 5 special places at the distribution of the Commanding Officer must be made for short leave of 10 or 15 days duration. This is essential for cases of domestic urgency, litigation, etc., and leaves only 59 vacancies for long leave during each period. As a result $59 \times 4 (= 236)$ Indian Other Ranks get long leave in the year—a little under a third of the total strength of the Battalion.

Chart A is an attempt to make up a detailed hot weather programme for an Indian Infantry Battalion. This is worked out on the above basis, and, as far as possible, under existing rules and regulations, with a view to getting each Company together, free from all duties and fatigues, once during the season for musketry, and once for all other kinds of individual training.

The individual training period, for which no specific dates are laid down (I. T., Vol. I, Sec. 6, Para. 1), has been made to coincide with the period during which men are on long leave, *i.e.* 1st March to 1st November.

This also embraces the two furlough periods extending in all from 15th March to 15th October.

As the aim in view is to strike each Company off all duties and fatigues twice during the training season, once for musketry, and once for all other forms of individual training, the season must be divided into four equal periods coinciding with the leave periods, so that the training of each company may be uninterrupted.

In each period there is one company at full strength doing musketry; one company doing nothing except finding guards and fatigues and supplying "employed men;" one company (less its furlough men) doing individual training; and the greater part of the 4th company is on leave and furlough.

Now to examine this chart more closely during one of the periods take, say, the 1st—the month of March and April.

“A” Coy. is on leave and furlough. It has actually on furlough 50, which represents $\frac{1}{3}$ of 127 (the total for 1st furlough which is divided between two Companies and $\frac{1}{3}$ H. Q. Wing) less $\frac{1}{12}$ of H. Q. Wing in a rough proportion of 1 I. O. 9 N.-C.O.’s, 39 Sepoys and 1 Bugler.

On long leave it has 47 which represents 59 ($\frac{1}{5}$ of the number that will go on long leave from the Battalion in one year) in a rough proportion of 2 I.O.’s, 7 N.-C.O.’s, 36 Sepoys and 2 Buglers.

The leave company’s parade state therefore will be roughly as follows (no account being taken of I.O.’s or Buglers):—

Strength.	N.-C. O.	Sepoys.	N.C.O.’s including Lance-Naiks, 26.	Sepoys, 117.
Furlough ...	9	39		
Long leave ...	7	36		
Short leave ...	...	2		
I/c L. G. Mules ...	...	5		
Coy. Messing ...	...	2		
I.O.’s Orderly ...	...	1		
Coy. Storeman ...	1	1		
Coy. Hav. Major ...	1	...		
I/c Rifles ...	1	...		
Sick and Convalescent	1	2		
Coy. Messing ...	...	2		
Drill Staff ...	...	1	20	91
Available for duty ...	...	...	6	28

These men are best utilised in relieving the employed men of the musketry and training companies.

D. company is the company struck off for weapon training.

The single line represents preliminary instruction, the five parallel lines range practices. It will be seen that 3 weeks are allotted to preliminary instruction and just over five weeks to the

range, which is slightly longer than is required, but, as all companies must change round to other duties at the same time, no advantage would be gained by allotting less.

C. company is the duty company. Before it can find guards, however, it will have to supply men to relieve all possible employed men of the musketry and training companies. Its parade state will be approximately as follows (excluding I. O.s and Buglers):—

Strength.	N -C O.'s	Sepoys	N.-C. O.'s and Lance-Naiks. 26.	Sepoys, 117.
<i>Own duties.</i>				
Coy. Messing ...	...	2		
L. O.'s Orderlies ...	...	4		
I/c Rifles ...	1	...		
Coy. Storeman ...	1	1		
C. Hav.-Major ...	1	...		
I/c L. G. Mules ...	...	5		
<i>Regtl. Duties.</i>				
Regtl. Police ...	1	6		
School Orderly ...	...	1		
I/c. L. G. Mules. (D. and B. Coys.).	...	10		
Office Orderlies ...	...	8		
Hospl. N.-C. O. and Orderlies	1	2		
Bn. Orderly Hav. ...	1	...		
Mess Hav. and Orderlies ...	1	4		
Station Police ...	...	11		
Sta. Sanitary Sec. ...	...	1		
Sick and Convalescent ...	2	4		
Courses ...	1	1		
Drill Staff ...	2	4	12	64
Available for Guards ...	...	...	14	53
Add men of A Coy. ...	...	...	6	62
Total for Guards ...	...	...	20	79

On guard at night there will be 8 N.-C. O.'s and 33 men. Therefore the N. C. O.'s and men will be on guard, roughly speaking, on alternate nights, though some of them will occasionally get two consecutive nights in bed.

No mention has, however, been made of the relief of men in the H. Q. Wing who are on leave or furlough. It may be assumed that the men actually available for duty will be less than shown, and men for guard duty will find that their turn comes round on alternate nights.

There is however no reason why all guards should not be found on Wednesday nights by the training company on Saturday nights by the musketry company and on Sunday nights by H. Q. Wing. Then in one week an N.-C. O. or man would be on duty as follows:—Monday, duty; Tuesday, bed; Wednesday, bed; Thursday, duty; Friday, bed; Saturday, bed; Sunday, bed; which is no great hardship.

Last comes B. Coy. which is struck off duty to concentrate on individual training. This however has clashed with furlough and, instead of all being present, the Company has 1 I. O., 9 N.-C. O.'s, 39 Sepoys and 1 Bugler away. This is the main difficulty of the individual training period. Looking again at the chart and knowing how low "nights in bed" are bound to be throughout the hot weather, it can be realised that there will never be an opportunity of getting the absentees together after their return from furlough to go through their annual setting—up drill and individual training.

These furlough vacancies could not with any advantage be filled from any other company. If men were sent from the musketry company they would have to fire as a casual party later on and be difficult to fit in. If sent from the duty company it would only result in larger calls for guard duty being made on the training company. An instance of this evil occurs in the 2nd period (May and June), when "A" Coy., whose men should be all present for guards and fatigues, has 50 Indian Ranks away on furlough.

After considering the above figures it can readily be seen that the many advantages of the Training Cadre Classes are neutralized by the disadvantages, either of taking N.-C. O.s from their com-

panies when they are urgently required to train their platoons or sections, or of reducing the N.-C. O.s and men available for duty in the duty company.

Guards and duties are a necessary evil, and it may be accepted that, in no Battalion or Station, are they in excess of the necessary minimum, and that, therefore, in that direction no improvement of the situation is possible.

It only remains, therefore, to enlarge on difficulty "D" mentioned above, *i.e.* the system of granting leave and furlough in months and not in weeks.

Programmes of work are usually complied by the week. So long as leave and furlough are arranged in months, and consequently the change over among Coys. from training to duty or to musketry occurs monthly, the valuable days in each month in excess of 28, if not wasted, are not used to their full advantage.

These days, in the period covered by chart "A," amount to 21, *i.e.* 3 weeks—a great amount of time to waste, in view of the immense amounts of important work to be accomplished.

The remedy.—As regards the furlough question it is suggested that furlough for Indian Ranks be abolished altogether, and, in lieu thereof, an equivalent amount of leave be granted every year to every man in the Battalion.

Under present conditions $\frac{1}{3}$ rd of the men go on furlough each year and about $\frac{1}{3}$ rd on long leave. This means that, as far as the individual soldier is concerned, in a cycle of three years, he gets furlough in one year, leave in a second, and nothing in the third year, a total of five and a half months (or roughly 153 days) at his home (exclusive of casual leave).

If long leave were given him every year to compensate for loss of furlough, he should get 51 days' leave in the year—say 7 weeks. There would be no reason to abolish the free passage both ways now admissible to furlough men. A man could still be granted a free passage to his home on *leave* once in three years.

The total loss to the sepoy if this scheme were adopted would be a loss of 6 days at his home in 3 years, and the cost of his fare to his home and back in the third year. In view, however, of the

huge number of applications that are made for casual leave, often for rather unconvincing reasons, it is hardly to be anticipated that the sepoy would be deterred from taking leave in the third year by lack of funds.

Chart B is a programme for the individual training season, compiled on the basic assumption that there will be four leave periods of 7 weeks each.

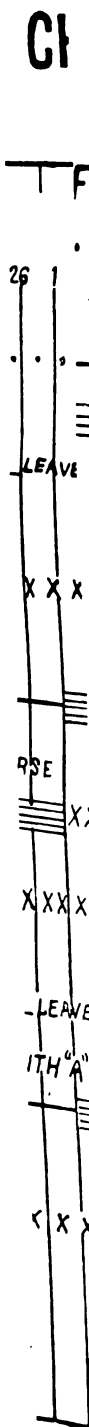
In this chart the Individual Training season extends from the 17th March to 27th October. It is subdivided into four periods of seven weeks each, coinciding with the four leave periods, with a blank week in between.

In the first period it will be seen that "D" Coy. is on leave in toto. "A" Coy. is duty company. "B" Coy. is engaged on weapon training. The latter has three weeks for preliminary training and four weeks in which to complete its range practices. This can be extended, if need be, over the one week shown blank at the end of each period—and this is illustrated in the chart in the case of the third period.

The fourth, "C" Company is relieved of all duties and fatigues and its employed men are relieved by men of the duty company. Thus, so far as possible, the whole Company is available every day for seven weeks for individual training. This too can be extended to eight weeks over the blank week between periods, as is shown in the chart in the case of "A" Company in the third period.

The week left blank after each period is available to meet 7 out of the 10 days segregation of men returning from leave, and so only really affects the leave company; other companies have eight weeks instead of seven for training.

Men in segregation can no doubt be put on guard by themselves. The training of men in segregation is, however, bound to be unsatisfactory as they will not be under their own N.-C. O.s or Indian Officers and will in all probability look upon the whole thing as a fatigue.



CH

REFERENCES:—

DUTY COY.

26 1 8 XXXX = **INDIVIDUAL TRAINING.**

— = **PRELIMINARY MUSKETRY.**

 = **RANGE PRACTICES.**

LEAVE

X X X

RSE

XX

X | X X | X X

LEAVE.

ITH "A" CC

X	X	X	X
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It remains only to make sure that the guards and duties of the Battalion can be found by one company—the duty company. The state of the duty company should be as under :—

Strength.			N. C. O.'s and Lance- Naiks, 26.	Sepoys, 117.
<i>Own Duties.</i>	N. C. O.'s	Sepoys.		
Company Messing ...	...	2		
I. O.'s Orderlies ...	...	4		
Coy. Storemen ...	1	1		
Coy. Havr.-Major ...	1	...		
I/c. L. G. Mules ...	...	5		
I/c. Rifles ...	1	...		
<i>Regtl. Employ.</i>				
Regtl. Police ...	1	6		
School Orderly...	...	1		
I/c. L. G. Mules and (Coys.)	...	10		
Office Orderlies ...	...	8		
Bn. Orderly Havr. ...	1	...		
Hospital N.-C. O. and Or- derly.	1	2		
Mess Havr. and Orderlies...	1	4		
Station Police ...	...	11		
Station Sanitary Section ...	...	1		
Sick and Convalescent ...	2	4		
Courses ...	1	1		
Drill Staff ...	2	4	12	64
Available for Guards ...	...	...	14	53
Guards to be found ...	...	...	8	33

This proves that one company cannot do the work, especially as reliefs will have to be found for the proportion of the H. Q. Wing that are on leave, about 38. But this can be arranged so that the men are comfortable as follows :—

The company doing musketry can find all guards on Saturday nights and H. Q. Wing can find them on Sunday nights.

The training company will then have to divide the period of 8 weeks allotted to it for individual training into two periods of 4 weeks each. During these, two platoons will concentrate on training and the remaining two (which will be at full strength, having had all their employed men relieved) will help in providing guards equally with the platoons of the duty company. The two platoons actually engaged on training can provide all guards on Wednesday nights.

Each $\frac{1}{4}$ company then gets the 4 weeks' training laid down in I. T. as a desirable minimum.

The advantage of Chart B over Chart A is that twice in the individual training season each company at full strength is put at the disposal of its commander for musketry and other instruction.

The company commander, and, what is still more important, the platoon and section commanders, have their commands complete to train, instead of merely "paper" units. Each will have something tangible to get hold of and teach, and the instruction can be progressive.

The mere fact of a whole unit being present and complete day after day will increase company, platoon and section spirit. This now only begins to appear annually in the collective training season at company training, to fade away again as soon as the training is completed and the men are dispersed on to various "jobs."

With the object of fostering this spirit, company and platoon teams at hockey, football and athletics, will be far more easily formed than hitherto, and matches can be arranged with companies of other battalions.

The training of the V. G. Platoon and the Battalion Signallers and Band has also been arranged for in Chart "B" so that a proportion are present throughout the year.

The remainder of the H. Q. Wing can fire their musketry and go through their drill with the companies from which the men were supplied.

In reviewing the above scheme certain disadvantages at once present themselves.

Firstly the "duty" company is broken up by the "employed" men which it has to find, while guards will not be found by section and platoons as laid down in I. T., Vol. I, Sec. 2, para. 4 (VIII). But in any battalion, where duties are heavy, it will have been found already that in the furlough and leave season this system, however desirable, is an absolute impossibility.

Secondly there is the more serious disadvantage that in case of a sudden call on the battalion to move out for operations without waiting to mobilise, the absence of one complete company will wreck its organisation.

That is a point for the higher command. Is it preferable, when a large number of British Officers are away from the Battalion, that the 500 men who move out are organised in four companies of varying strength, commanded in some cases by very junior British Officers, or are they more useful as two full companies, a company and H. Q. Wing?

A parallel conundrum is the relative value of two brakes, one drawn by two strong horses with a pony behind ready to form a "unicorn" up hills, and the other drawn by a four-in-hand consisting of a horse, a pony, a bullock and a mule.

The activities of the Training Cadre are apt, if things are not very well organised, to deprive the Company and Platoon Commander of his medium of instruction, *viz.* his N.-C. O.s.

Yet, owing to the few vacancies available for any one unit at schools of instruction in the year, the Training Cadre method is the only way of quickly disseminating up-to-date instruction throughout the whole battalion and of ensuring uniformity.

It is obvious, therefore, that the best time for the Training Cadre to get the to work is at the beginning of (and preferably before) the individual training season commences. ("Report on the Staff Exercise held by the 'C. I. G. S., 9th April to 13th April 1923,' page 11.")

It is suggested, therefore, that the 6 weeks from the 15th February to 15th March should be devoted almost exclusively to Training Cadre Classes for N.-C. O.s in various subjects. This does not prevent smaller classes being held throughout the season for companies who go on leave in the early part of the individual training period.

As a general rule, however, March is very overcrowded with Rifle Meetings, Assaults-at-Arms, inter-Platoon and Company Competitions and athletic meetings, etc. possibly even manœuvres.

It is essential therefore that collective training should be pushed on as fast as possible after 15th October in order to leave this period free.

In order to do this, two companies from each battalion should go out to company training for a fortnight at a time from 15th to 31st October, and the remaining two from 1st to 15th November.

Battalion training of fourteen days could then be finished by 15th December if two battalions from a brigade went out, simultaneously from 16th November to 30th November and from 1st to 15th December.

The month of January would then be available for brigade or district manœuvres or both, and the first part of February might (with the co-operation of the A. R. A. (I) and the A. S. C. B.) be set aside for the rifle and athletic meetings that usually occur at this time of year. A clear month from 15th February to 15th March would then be available for giving full scope to the Training Cadre.

To sum up the proposals of this article: They are—

- A.—To abolish furlough for Indian Ranks and to give seven weeks leave every year instead, with a free passage both ways one year in three.
- B.—To find guards and duties from one company only for as long as eight weeks.
- C.—To arrange collective training so that the period 1st February to 15th March be left clear for the training cadre.

If these proposals were adopted, it is urged that far more training would be got through. The training itself would be of a far higher standard and far greater keenness would be shown by the men. "Esprit de company," and platoon, would be largely increased, and, while the work and worry of a company commander would be reduced, a far higher standard of efficiency throughout the unit would be attained and preserved.

ARTILLERY PLANS AND TACTICAL PROBLEMS FOR DISCUSSION BY OFFICERS OF ALL ARMS.

By Bt.-Lt.-Col. E. C. Austey, D.S.O., R.A.

It is a matter for regret that the Army's traditional attitude of aloofness from Artillery problems should not have been shaken more than it has been since the Great War. In the presence of the "Scientific Arm" officers of all ranks display unjustifiable modesty and hesitation in criticism. This respect for the artillery is to be deprecated for two reasons. Not only would the military judgment of many capable officers be rounded off by a more fearless and unfettered expression of views on artillery tactics, of which they are perfectly capable, but artillery officers would benefit largely by a more critical examination of artillery problems and their solutions of them. Avoidance of such criticism has had the inevitable result of undervaluing the importance of artillery tactics and of engendering a habit of forming hasty and ill-considered artillery plans, or of taking action without forming any plan at all.

The lack of confidence on the part of officers of other arms in dealing with artillery is possibly due to some extent to exaggerated conceptions of the mysteries of fire control in which aiming points, angles of sight logarithms and mathematical formulæ form a confused and alarming background. But divorce gunnery from the handling of artillery and the resultant artillery tactics is well within the compass of professional soldiers to discuss and form a judgment on. For it must be assumed that the professional soldier is one who is familiar with the general characteristics of all the weapons of a modern army and that he appreciates the ranges at which guns and howitzers can fire; the nature and approximate amounts of ammunition they carry; the types of country across which they can move and of the positions from which they can fire. The reader who follows this article to the end will be struck by the similarity between the nature an

method of treatment of artillery and of other tactical problems; and if such have not hitherto engaged his attention in detail, he will find that some consideration given to them will dispel any clouds of scientific mysteries that may have hung about them, and, by endowing him with confidence in discussion and criticism, will increase greatly his powers of co-operation in the field.

From the artillery point of view, tactics fall under three major headings:—

(A) Artillery Tactics—

(i) Employment, movement, co-operation.

(ii) Fire Tactics.

(B) Infantry Platoon, Company and Battalion Tactics.

Principles only, in order that artillery officers and observers may understand infantry formations and follow their movements with intelligence.

(C) Combined Tactics of Forces of All Arms.

It is with the sub-heading A (i), Employment of Artillery, that we are mainly concerned here.

Before developing that subject, however, a few words may not be out of place on sub-heading (B), Infantry Tactics. Here is a field in which infantry commanders can be of great assistance to gunners in the training season, without dislocation of their own training programmes. By notifying where platoon, company and battalion attacks are to be carried out, batteries are given valuable opportunities of assembling their officers, senior N.C.O.s and battery staffs to watch the movements. If a good observation point is available not more than 1,200—1,500 yards from the objective, so much the better. The assistance of an infantry officer in confirming or correcting the observations of the gunners would always be appreciated.

Some of the points that such an infantry officer should bring to the notice of the artillery when watching an attack are as follows. The formations of the infantry in the approach and the change in those formations when coming under fire. The rule of a L.G. section has been dropped in rear, the section is therefore under considerable fire; the Lewis gun is being carried by hand

and the section is probably seeking the nearest suitable fire position on which to come into action. An extended section can be seen to have two scouts moving in front of it. The deduction is that it is a leading section. This is of great importance to the artillery to know. Moreover, though under fire, the section can still get forward and has not yet been compelled to open a fire fight. Conversely it can be seen that a section is moving, say in arrow head formation without Scouts out. It cannot therefore be a leading section which must be searched for up to two or three hundred yards in front. The location of the leading sections is always a matter of supreme importance for the supporting artillery and at a distance of 1,000 yards or over is not always easy to determine. A leading section can be seen opening fire. A L. G. section has moved into action on its right. The observer searches the ground to the left to locate the remaining sections of the platoon, which in all probability are developing a flanking movement from that direction. Many more such points will occur to the infantry officers. Not only will they be ably serving the cause of co-operation by helping Artillery Officers to appreciate the significance of every infantry movement, but they will recognise the difficulties of gunners in supporting the infantry attacks; while the Artillery Officer, in learning to lose no clue as to the location, progress, and intentions of the Infantry, will appreciate the importance of close and continued observation of the troops he is supporting. He will become convinced that no man can control the fire of guns and observe both the enemy and his own infantry at the same time; and he will deeply regret the limitations of practice camps which compel him to learn the situation of the imaginary troops taking part in the battle from verbal descriptions delivered by the Camp Staff, freeing his whole attention for the problems of fire control. Fire control is elevated thus to a false position of primary importance and the difficult art of observation is relegated completely to the background.

Now, in deciding where and how their attack is to be delivered, Infantry Officers are being taught to follow certain methodical lines as laid down in that admirable pamphlet "Elementary Tactical Training." It will be remembered that those lines are summarised in three Appendices which are reprinted at the end

of this article for ease of reference. Appendix B contains a familiar outline of the manner in which a Plan should be formed. An Artillery Officer faced with an Artillery Tactical Problem, cannot do better than follow that outline in forming his Artillery Plan. It will be seen that of the considerations that enter into the formation of that Plan, intricate gunnery problems take but small part, and the majority of the points involve, as in other tactical problems, the application of common sense rather than of deep scientific knowledge.

If officers at conferences which follow tactical exercises prefer to leave to the senior artillery officers present, the criticism of the manner in which fire was applied there is no reason why they should flinch from discussion and criticism of the Artillery Plans made, or not made, as the case may be. It is to be feared that abstention from such criticism has resulted in such general disregard for Artillery Tactics that, at many exercises, Brigades and Batteries act in accordance with no clear cut plan at all. Tactical Training has come to mean, for the Artillery, five schemes for officers dealing with the handling of a mixed Force in Outposts, Advanced Guard, Rear Guard, Attack and Defence on the one hand, and certain aspects of Fire Tactics on the other.

An Artillery Tactical Problem may be defined briefly as the question an Artillery Unit Commander has to answer in carrying out orders received from his superior commander on the battlefield. The answer constitutes his Artillery Plan. However simple his orders may appear, there will always be more than one way in which they can be carried out; and, consequently, consideration of several points will be necessary to decide on the best way. Every artillery operation on the battlefield requires a plan of greater or less complexity for its proper execution. This applies as truly to the operations of the commander of a detached section as to those of the battery or brigade commander or of a divisional C.R.A. It follows as corollary that no definite move except of a preliminary and non-committal nature towards the execution of an order can be made until the Plan has been formed.

It is on this point that the 3rd Volume of Field Artillery Training, which deals with the Employment of Artillery, is perhaps misleading. For it lays down that the first action of an

Artillery Unit Commander after receiving his orders should be to reconnoitre for his observation post. This is not so. The Commander must look further ahead than that. Until he has considered the factors of the situation, he cannot know whether it is desirable even to commit his guns to action, or to await developments. He must decide how he is going to put his orders into execution before he sets about doing so. But no time must be wasted. In many cases action may have to be extremely rapid. A swift and sound plan will only be formed by a man who is accustomed to meet such problems in a methodical manner. The course of action laid down in Appendix A cannot be bettered—a mastery of the orders received, essential enquiries respecting his own troops and the enemy, a brief study of the map, reconnaissance of the ground and an understanding of the Infantry Plan, the formation of the Artillery Plan, a further technical reconnaissance, if necessary, and the consequent issue of orders. Such should be the sequence of events.

It will be observed that a clear distinction is drawn between the tactical and technical reconnaissance. The tactical reconnaissance is that on which the Artillery Plan is formed. When the task in hand is the support of an Infantry Attack, the tactical reconnaissance should, whenever possible, be carried out by the Artillery Commander in company with the Infantry Commander. It may occur that, the Artillery Plan having been formed, the O. P. and Battery Position can be selected on the data yielded by the reconnaissance already carried out. If not, then a further technical reconnaissance to choose those positions will be necessary. There is undoubtedly a temptation for batteries detailed to support an infantry attack to omit any thorough consideration of the Artillery Tactical Problem presented to them and the consequent formation of a Plan, and to leap straight into action in the first position that captures the eye. In the second of the examples given later on, the line of least resistance would have been for the Battery Commander to have established himself beside the Battalion Commander with his Battery in action in any convenient position behind him, trusting hopefully that he would be able to put his shell more or less on to the targets indicated to him by the

Infantry. Nothing will check such easy going methods more effectually than inquiries at the subsequent conference concerning the details of the Artillery Plan and intelligent discussion of that Plan by officers of other arms.

What the nature of an Artillery Plan should be will be evident if the reader will turn again to Appendix B and consider the points given in turn from the point of view of a battery commander supporting, let us say an infantry attack. The object will depend on the orders received, or on the Infantry Commander's plans and wishes. As in any problem, it is important that the object should be clearly formulated and kept in view, and that the plan selected should subscribe to that object and no other. As regards action by the enemy, the Artillery Commander must consider likely hostile Artillery Positions and O. P's., either with a view to crushing them, or to concealing himself from them. He must estimate probable positions or approaches for the hostile infantry and machine guns, and ensure that his arrangements will facilitate the most effective fire being opened upon them. If all such ground cannot be seen from one place, it will be for consideration whether alternative O. P's. should be established or the Battery dispersed. Ground which the enemy is likely to shell must be noted for avoidance, and favourable lines of attack for hostile tanks given attention.

Under the heading of the action of our own troops, some such points as the following will require consideration:—

(a) The tasks and capabilities of other guns in the neighbourhood may or may not relieve the Battery Commander of anxieties in certain directions.

(b) The action of the M. G's. must be considered, for the Plan must provide for co-operation with them. Neighbouring troops may be able to assist and co-operate.

(c) The bounds decided on for the Infantry must be located on the ground, for it will be important that the guns can aid the troops to reach each successive line, and cover them on it.

(d) On the intended movements of Company and Battalion Commanders will depend the arrangements for communication with them; whether the Battery Commander should accompany

one or other in person or depend on a liaison officer and signalling.

(e) In small operations unprotected flanks must be borne in mind, and escorts asked for, or Lewis guns disposed accordingly.

As regards the ground, general conditions concerning O. P's. and battery positions cannot be omitted, though detailed reconnaissance (the Technical Reconnaissance) may be necessary later on. It is useless to form a plan if no position exists from which the plan can be executed. Approaches to the zone in which the battery is to be called upon to act must be noted. Facilities for an advance by bounds, should it prove necessary, are important, and the extent to which ground over which the infantry intend to advance can be observed from one locality will have considerable influence on the arrangements.

From such data alternative plans can be considered and a decision reached as to which to adopt. Some of the alternatives that may present themselves are bracketed together as under:—

- { Keep guns in Hand limbered up until Situation clears.
- { Come into a Position of Readiness.
- { Come into a Position of Observation.
- { Come into Action and Register ranges of likely targets or prominent objects by actually firing.
- { Come into Action but remain Silent until the infantry require assistance.
- { Bring all guns into action.
- { Keep one or more Sections in Hand.
- { Disperse Guns.
- { Detach a Section on a Special Mission.
- { Remain Personally with the affiliated Infantry Commander and hand over the fire control of the Battery to another Officer.
- { Send a Liaison Officer to the affiliated Infantry Commander and remain in person in control of the guns
- { Use a F. O. O. in addition to the O. P.
- { Use Artillery Patrols to report on the situation.

- { If Surprise is vital, move cautiously under cover, employ no ranging, but use predicted shooting methods when opening fire.
- { If Speed is of first importance move with rapidity and take risks. Keep the teams near the guns.
- { If Surprise impossible take normal precautions and register targets.
- { Observed fire.
- { Time Table.
- { Combination of above.
- { Protection by other troops as disposed.
- { If such protection inadequate is Escort wanted?
- { Location of Lewis Guns, near O. P. or Battery or Wagon Lines.

The above enumeration of points for consideration in the formation of a plan is by no means exhaustive. Enough has been said to indicate the nature of an Artillery Plan and of the data on which it is based. But practice is worth more than theory and two fully worked out examples are now given. The first is a simple pack artillery section scheme to which the whole of Appendix A has been applied. The action of the section commander is traced in detail from the receipt of his orders to the issue of his own. The second is an 18. pdr. battery scheme based on a Divisional Tactical Exercise carried out at Quetta last year. This is of interest because the timings of the attack are those of the exercise and it will be seen what a short time was left to the battery commander to make his arrangements. In this scheme Appendix B only has been worked out, though the procedure of Appendix A would be followed in practice.

EXAMPLE No. 1.

PACK ARTILLERY SECTION SCHEME.

(See sketch, page 84).

Narrative.—Northland and Southland Forces of approximately equal strength (about three divisions) have been engaged for 24 hours. Having located Northland's flank on **Stour Hill**, Southland delivered a dawn attack with one Brigade. The Brigade

has been brought to a standstill, with its Reserves exhausted, in the following position:—Two Battalions have forced **Brick Bridge** and **Low Stream** for 2,000 yards to the Westward, but are checked on the open slopes beyond by artillery fire and unlocated machine guns. One Battalion, ordered to extend the flanking movement, made good **Low Wood** and **Old Manor House**, but lost heavily in trying to cross the stream from short range fire from the **Green Wood** locality. The 4th Battalion of the Brigade, still continuing the flanking movement, found **Grebe Farm** occupied in unexpected strength, stormed it with loss, but were driven back by a heavy concentration of artillery fire and by M. G. fire from the direction of **New Buildings**.

Further movement by the right is rendered hazardous by the Marshy ground N. and N.E. of **Grebe Farm**. The divisional commander accordingly decides to employ his final reserves of two Battalions to penetrate through the enclosed country about **Green Wood** on **New Buildings**, and thence develop a turning movement Eastwards on **Stour Hill**, 1st Bn. is allotted the **Green Wood** locality and **New Buildings** as objectives, 2nd Bn. to be held in reserve to exploit 1st Bn.'s success and develop the turning movement in co-operation with other troops which are on their way up. Time of 1st Bn.'s attack to be 13.00 hours.

1st Bn. allots to A Coy. **Green Wood House** Eastwards to **Low Stream** as objective, attacking from **old Manor House**, B Coy. to leap-frog A Coy., objective **New Buildings**. Of the 3rd Pack Battery which was allotted for close support of both Bns., one Section is given to the 1st Bn. The Battery is concentrated behind the **Tumulus**.

The action taken by the Section Commander should be as follows:—(Note that the Appendices of "Elementary Tactical Training" are closely followed.)

1. He makes sure that he understands his orders and asks his Battery Commander whether this means that he is to remain with 1st Bn. until further orders and assist in the consolidation of **New Buildings**, if captured. The answer is "yes:" but he is warned that, if the operation is successful, he may be called upon to push on and join the remainder of the Battery with 2nd Bn.

The Section Commander asks whether he should restrict his Ammunition expenditure in view of this warning and is told "no : ' the capture of **New Buildings** is vital, and, if necessary, every round must be expended in attaining it.

2. He then asks for further information regarding the enemy and his own troops so far as his own action is affected, and learns that counter battery arrangements are in progress : that, as A Coy. leaves **Old Manor House**, a very heavy concentration of 18 Pdrs. and 4.5 Howrs. will be put for 10 minutes on the whole of the **Green Wood** locality, lifting then 200 yards clear of **Low Stream** for another 10 minutes, after which it will move back on to **New Buildings** and will sweep **Stour Hill Low Stream** is too marshy for Tanks but it is hoped arrangements for their crossing can be made once the **Green Wood** locality is in our hands. A few hostile Tanks have been observed moving towards the left flank. The O. C. 1st Bn. is near **Old Manor House**.

3. The Section Commander orders his Section to remain at the **Tumulus** ready to move along the avenue to **Old Manor House** when sent for and places a Signaller East of the Avenue where he can see the hedge of the **Old Manor House** enclosure. Instructs his Senior No. 1 and Senior Signaller to follow him to the **Manor House** and gallops on with a horseholder and the Battery Commander's Assistant (temporarily attached to the Section) to interview the Bn. Commander. This Officer explains that he hopes the Artillery Concentration will be sufficient to allow A Coy. to occupy the **Green Wood** locality, but he wants the Pack Guns to be ready to shell the **Green Wood** house, if it proves an obstruction, and then to be ready to co-operate with B Coy. as it leap-frogs A Coy. for the attack on **New Buildings**.

A Coy. Commander explains that his intention is to try and rush from **Old Manor House** to the line of the road with 3 Platoons in front line and one in support, his rush coinciding with the first Artillery crash on the **Green Wood** locality. His left Platoon will try and cross the road and work nearer the stream. On the Artillery Lifting he will try and rush the stream which, though muddy, he believes to be no

great obstacle to the infantry. The Right Platoon will then be directed to clear the wood lying between the stream and the dotted road, occupying the hedge in line with the Avenue, and pushing on, if possible, to the next hedge as the line on which to consolidate. The 2nd Platoon will act similarly between the dotted road and the house, both exclusive, and 3rd Platoon will attack the House. He himself, with his Reserve Platoon, will move *vid* the Ford towards the corner near the word "**Wood**," as he expects the left to be the most important flank.

B Coy. Commander's Plan, so far as he is able to form it from the map and what he can see from **Old Manor House**, is likely to be an advance to the road as soon as A Coy. enters the wood and a movement through A Coy., as soon as their objective is attained, in diamond formation, leading Platoon along the hedge towards the S.-E. corner of **New Buildings**, Left Platoon along the Western hedge, Right Platoon along the banks of the stream, Reserve Platoon to the Avenue. If the Centre and Left Platoons fail to make progress he will probably try to make a flanking movement along the stream. One Section of M.G. has been allotted to B Coy. Its Commander cannot form his plans until he reaches **Green Wood**. He expects, however, that he will best help the flank attack (if made) by enfilading the hedges.

4. The Artillery Section Commander now studies his map and notes :—

- (i) That the Ford is his only crossing point over the stream.
- (ii) That the map does not tell him whether the stream above **Green Wood**, with its hedges and line of trees is, or is not, a covered line of advance for his guns.
- (iii) That an enemy counter-attack is more likely to be delivered across the low ground East of **New Buildings** than across the slopes of **Stour Hill** which are under Artillery fire.

5. From the neighbourhood of **Old Manor House** he studies the ground with his glass and establishes the following facts (Tactical Reconnaissance):—

- (a) There is probably no more favourable observation lost S. of **Low Stream** than the point he is at. Yet all he can see is from 50 to 100 yards into **Green Wood**, the roof of **Green Wood House**, about 100 yards of fore ground in front of **New Buildings**, and the whole of **Low Stream**, of which the part above **Green Wood** is in enfilade.
- (b) The hedge along the enfiladed part of **Low Stream** is on top of a bank, along the foot of which appears to run a rough patch.
- (c) **New Buildings** are very modern brick cottages.
- (d) All the hedges visible are thick and about 4 feet high with ditches on one or both sides.
- (e) **Old Manor House** itself is just in view of the top of **Stour Hill**: but the ground sloping gently to the stream is hidden by the trees of **Green Wood**.
- (f) **Grebe Farm Hill** is still being subjected to bursts of heavy Artillery Fire.

6. The Artillery Section Commander proceeds to form his plan. (See Appendix B.) The course of his thoughts is as follows:—

My object is (a) to assist A Coy. to enter and clear **Green Wood** and occupy the line of hedge just N. of it, and (b) immediately afterwards to help B Coy. to attack and capture **New Buildings** and consolidate themselves there. It appears probable that the *Enemy* have posts in **Green Wood**, say 50—100 yards from **Low Stream**; **Green Wood House** may be prepared for defence; defended points will certainly be found in the hedge (A Coy.'s objective) flanked by the fire of M.G's. which have already disclosed themselves from about **New Buildings**. There are also one or two suspicious points in the bank and hedge on the upper part of **Low Stream** which may be Light Automatic Guns. As soon as it is clear that **Green Wood** is in our hands, the enemy are sure to put a heavy artillery fire on to it—it

is a simple switch for their guns already firing on **Grebe Farm**. I must therefore avoid the wood as much as possible. But they are sure also to leave some guns on **Grebe Farm** which is such an important point to deny us. As regards *our own troops* no assistance can be expected on the right flank. On the left our infantry in **Low Wood** can materially assist A Coy's. left flank with their fire. My help will probably only be needed on that side if **Green Wood House** is held. I must be prepared to continue firing on **New Buildings** when our guns and howitzers lift off them. If the M. G's. deal with the hedges facing East, when B Coy. attacks I can concentrate on the houses and on **Low Stream Bank**.

The important features in the *ground* to notice are that from **Old Manor House** the view is too obscured to render efficient close support to both attacks. But from its neighbourhood, **Low Stream** can be enfiladed and **New Buildings** fired on. I cannot count in advance on any crossing over **Low Stream**, without preparation, other than the Ford. **Green Wood House** can be shelled effectively only from near **Tumulus** (1,800 yards) or from **Low Wood** or from the N.W. edge of **Green Wood**: **Green Wood** is only 600 or 700 yards from **New Buildings** but the bank by the stream offers a covered approach towards our right flank.

Alternative plans appear to be—

- (i) to knock out **Green Wood House** from near **Tumulus** (I cannot get to **Low Wood** under cover) and then move up. But at that distance I cannot co-ordinate my shooting properly with A Coy's. attack.
- (ii) to remain in action near **Old Manor House** whence I can help to shell the S. edge of **Green Wood**, enfilade the upper **Low Stream** and knock out the houses of **New Buildings**, sending a gun if necessary into **Green Wood** to shell the House if it is strongly held. But the delay caused by my not being on the spot might be fatal as it is of such importance to clear **Green Wood** rapidly before the enemy concentrate Artillery Fire on to it and probably gas it.

(iii) to follow the Infantry so as to be on the spot for whatever task I am needed. But, if they are checked going into the Wood, I may be caught in the open and will not be ready to help: while in the wood from the northern edge the short ranges may so cramp me that I may not be able to give adequate help at all or only with heavy losses.

A Combination of (ii) and (iii) therefore appears to me to be best.

My plan accordingly is as follows:—

- (a) Bring both guns into action near **Old Manor House** (but clear of the shelling it will probably draw) at a point from which I can help the infantry to enter **Green Wood** if any enemy posts survive our shelling: can enfilade the upper part of **Low Stream**: and can see each separate house of **New Buildings**.
- (b) As soon as the infantry have entered **Green Wood**, move down myself with one gun to join "A" Coy. Commander, ready to shell **Green Wood House** or any other strong point which is holding up the infantry.
- (c) Leave the other gun to begin searching methodically the hedge and bank of upper **Low Stream**.
- (d) As soon as **Green Wood** is in our hands, reconnoitre the end of **Low Stream** bank to see if I can get my guns into action there to support the attack on **New Buildings**.
- (e) If desirable bring the gun down from **Old Manor House** to rejoin me before "B" Coy's. attack begins.
- (f) If impossible to support "B" Coy. at very close range, use the **Old Manor House** gun for the purpose, establishing communication with it from the bank.
- (g) Keep the Lewis Gun back near the first position to protect the guns from counter-attack, and move it forward as soon as **Green Wood** is occupied.

7. The Artillery Section Commander now summons his Nos. 1 of Sub-Sections, N.-C.O. i/c. Wagon Line, and N.-C. O. i/c. Lewis Gun.

While they are coming up he completes his Technical Reconnaissance, deciding on a position marked X behind a hedge as his first gun position with an O. P. alongside the guns, within easy reach of O. C. "A" Company's initial position.

On the arrival of his N.-C.O.'s he issues his orders as follows:—

- (i) Sgt. Jones (No. 1 of A Sub-Section and Senior No. 1), to bring both guns into action in the position now being marked by the B. C. A.: guns to be limbered up* under cover of **Old Manor House** and brought into action by hand. Line of fire laid on the **Ford**.
- (ii) As soon as A Coy. has entered the wood and our support is no longer needed, Sgt. Jones to follow me with "A" Gun (on mules) to join A Company Commander about N.W. edge of **Green Wood**.
- (iii) Sgt. Robinson will remain in action with "B" Sub-Section, and, as soon as "A" Sub-Section moves, will turn his fire on to upper **Low Stream** and search the bank and hedge, watching carefully for our infantry to emerge from **Green Wood** and make good the S. end of the bank.
- (iv) Sgt. Robinson will arrange to collect some sheep hurdles from the neighbourhood of **Old Manor House** and bring them with him to make a passage across the stream near the bank (thus avoiding passing through **Green Wood**), if I signal him to bring his Sub-Section on.
- (v) N.-C.O. i/c Signallers will accompany me to **Green Wood** with 1 signaller and open communication with "B" Sub-Section from near the N.E. corner of the wood as soon as possible.
- (vi) N.-C.O. i/c Wagon Line will keep "A" Sub-Section mules near by in the Avenue ready for the move. "B" Sub-Section mules also in the Avenue but further back.

*Note.—i.e., the parts of the gun unloaded from the mules and assembled.

- (vii) N.-C.O. i/c. Lewis Gun will find a position on the right of the section to command the **Low Stream** valley, and will be ready to move forward and join me at N.E. corner of **Green Wood** on receipt of order.

EXAMPLE No. 2.

BATTERY (18 PR.) SCHEME.

(See attached sketch.)

A Blue Force, composed as under, Commander Lieut.-Col. Jones, 1st Blankshire Regiment, has been detailed to protect from interference from the West, the communications of troops operating northwards along the **Kach** road.

Compositions.

"A" Sqn., C. I. H.

100th Fd. Batt. R. A. (18 Prs.)

101st " " " (4.5 Hows.)

17th Coy. 3rd S. & M.

Dett. Bde. Sig. Sect.

1st Blankshire Regt.

2 Companys Westshire Regiment.

1 Sect. 1st Tank Bn. (4 Tanks).

1 Flight 20th Sqn. R.A.F. Operating from Race-course.

This Force had located an enemy column of 1 Sqn. 1 Battn. and 2 Batts. on the line **Pt. 5873—Kili Gul Muhammad**. The following attack orders are issued at 08.00 hours, X day :—

MOBILE COLUMN ORDER No. 5.

1. Enemy infantry, strength probably 1 Battn., is holding the line **Pt. 5373—Kili Gul Muhammad**; 2 Batteries in action just West of **Shaikh Manda**; about $\frac{1}{2}$ Sqn. Cavalry at **Khairulla** and $\frac{1}{2}$ Sqn. at **Samungli**.

No other enemy troops East of line **Kuchlagh-Samungli**.

2. The Mobile Column will attack,

from Baleli
3 1/2 miles

Shaikh Manda

← Samungli 1 1/2 ms.
Kuchlagh 8 ms N
of Samungli

Khairulh

N

3. The attack will be carried out as follows :—

(a) The outpost Coy. (B Coy., 1st Blankshire Regt.) will attack at 09·00 hours astride the **Quetta-Baleli** road on a frontage of 600 yards. This attack will be under the command of Major Jackson, 1st Blankshire Regiment.

(b) 1st Blankshire Regiment (less 1 Company) and Section Tank Battalion under command of O. C., 1st Blankshire Regiment, will deploy from behind **Kotwal** at 08·45 hours and attack **Pt. 5878**. As soon as **Pt. 5878** has been captured this column will, if necessary, wheel Southward and attack **Kili Gul Muhammad** from the North.

(c) One Section M. G. Platoon will support the frontal attack on **Kili Gul Muhammad** by covering fire from the Western outskirts of **Kili Shabo**. One Section M. G. Platoon will work in close support of the attack on **Pt. 5878**.

(d) O.C.R.A. will arrange to shell the position **Pt. 5878—Kili Gul Muhammad** from 08·45 hours to 09·15 hours to cover the attack and deployment of the infantry.

(i) From 09·15 hours 101st Batt. will be prepared to undertake counter-battery work.

(ii) From 09·15 hours 100th Batt. will be prepared to engage any special target indicated by the O. C., 1st Blankshire Regiment.

(e) The following will form Column Reserve :—

E. of Kotwal ..	{	"A" & "B" Coys., 1st Westshire Regt.
		The former will concentrate as soon
		as 1st Blankshire Regt. has passed
		through.
	{	Squadron C. I. H. (less 1 troop).

E. of **Kili Shabo**. 20th Coy. S. & M.

(f) R.A.F. will detail two machines to work with 101st. Battery in counter-battery work from 09·15 hours,

4. 20th Field Ambulance will establish an advanced dressing station east of Cemetery.

5. 2nd Line Transport will remain for the present parked north of the Cemetery.

6. Column H.Q. will be with the reserve East of **Kotwal** where all reports will be sent.

(Sd.) CAPTAIN,

S. O. MOBILE COLUMN.

Dictated at 08:00 hours to representatives of Units. Copies by mounted orderly to 20th Field Ambulance and Column Transport Officer.

The O. C. R. A. allots 100th Battery (18 pzs.) from a point 200 yards S. W. of **Pt. 5373** to the right and tells him to join Battalion Commander.

What action does the O. C. 100th Battery take on receipt of these orders?

1. The Battery Commander's orders being clear and no more information being obtainable, he and the O. C. 1st Blankshire Regiment proceed to the West portion of **Kotwal** to reconnoitre. From the N.W. corner they make the following observations:—

- (a) **Pt. 5373** is a prominent knoll perhaps 15'—18' high masked on the S.E. by a grove of trees.
- (b) This grove is masked in turn from the E. and S.E. by the banks of the **Karez*** or nullah which are unusually high and extensive. They provide cover and a field of fire and are an important tactical obstacle.
- (c) The other line of **Karez** further to the West is not so prominent and the ground between the two is quite open.
- (d) A covered approach from **Kotwal** exists as far as **Umar Khan**.
- (e) The ground to the E. is open, but a slight dip is indicated by the line of **Karez** running from the N.E. corner of **Kotwal** to **Pt. 61**.

* **Karez** in Baluchistan means a series of wells, generally surrounded by high spoil banks a few yards apart, connected at their bottoms so as to form an underground water channel.

They proceed to **Umar Khan** with the Coy. Commanders and the Battalion Commander issues his orders.

2. The O. C., 1st Blankshire Regiment, decides :—

- (i) to direct "A" Coy. to attack *via* **Umar Khan** on the Grove just S.-E. of **Pt. 5373**, frontage about 400 yards, at 09.00 hours, *i.e.* leaving **Umar Khan** as "C" Coy. leaves **Pt. 61**.
- (ii) "C" Coy. to move by the right to **Pt. 61** and attack on a front of 600 yards, left on **Pt. 5373**, with one section M. G. Platoon in close support.
- (iii) "D" Coy. to move to the neighbourhood of **Pt. 21** and remain in reserve.
- (iv) The section of Tanks to move under cover to **Umar Khan**, arriving there at 09.05, and, as soon as "C" Coy. is seen moving to the attack from **Pt. 61**, to attack along the East edge of the Karez objective, the Northern end of the Karez 500 yards N.E. of **Pt. 5373**.
- (v) Position of Battalion H. Q. will be near **Pt. 21** until **Pt. 5373** is captured, when it will at once move forward to that locality.
- (vi) He requests the Battery Commander to be prepared to shell the line of Karez leading to the **Grove** and the **Grove** itself and **Pt. 5373** any time after 08.00.

3. The O. C. 100th Battery appreciates the situation as follows :—

My object is to be able—

- (i) to develop fire on the E. portion of the enemy's position, on the **Karez** and the **GROVE** in 30' time.
- (ii) to fire on any target pointed out by the Battalion Commander during the attack of his Battalion.

The *enemy* have two batteries in action W. of **Sheikh Manda** about 5,500 yards from E. part of **Kotwal**. His only fair observation point is **Pt. 5373**. If that place is blinded by our fire and if, as it appears, the enemy have no Aeroplanes, I can

afford to take risks as regards selection of gun positions. (Effective M. G. range is of course always excepted.) The enemy will doubtless shell **Kotwal** and **Umar Khan** villages as soon as our attack is seen developing. I must therefore avoid their immediate neighbourhood. He is certain to be holding the line of **Karez** near the Grove in depth and to be prepared to develop fire to the East. M. G.'s will also probably be concealed in these **Karez**. It is important to get accurate observed fire on to that locality. As our Air Reconnaissance has located the enemy's two batteries, it is probable that any guns Anti-Tank or others are concealed in or about our objectives.

Our Troops should have a good chance of success with their flank attack, if the Tanks fulfil their programme and crush the enemy's fire directed against our "B" Coy. by moving along the **Karez** and possibly carrying the holding attack with them. Though Anti-Tank guns are not to be expected, I must be ready to help the Tanks as far as I can. It is about 300 yards from **Umar Khan** to the beginning of the prominent part of the **Karez Line** and about 400 yards thence to abreast of **Pt. 5878**, as far as I can judge from map and observation. The ground for Tanks appears easy, as long as they avoid the **Karez** themselves. Reckoning on a fighting speed on such ground of 8 miles per hour, the Tanks will cover the first 300 yards in $1\frac{1}{2}$ mins., and the last 400 yards in a little over $1\frac{1}{2}$ mins. If I fire on the 300 yards point at the moment they start I can only fire for 30", and must then lengthen range at the rate of 300 yards a minute, or say 50 yards a round. The Section M. G. accompanying "B" Coy. will also probably give covering fire from about the **Karez** near **Pt. 61**. Visual Communication with them would not be easy.

From the Artillery point of view the *ground* is not very favourable, but is probably less favourable to the enemy. It falls steadily from Quetta towards the N.W., but so slightly that, even from the top of an old butt at the 1,000 yards firing point on the ranges, a clear view of the foreground of the enemy's position is obscured by the trees and houses of **Kotwal** and **Umar Khan**. The slope is more marked from the N.W. corner of **W. Kotwal**, and a good view is obtainable from here between the two lines of **Karez** leading to the Grove, but nothing can be

seen of the ground to the right where the flank attack will come in. East and N.E. of **Kotwal** the very slight undulations are not sufficient to hide a Battery moving: when in action flashes would be visible, but probably the Battery would be hard to locate; the only O. P.'s. are the top of the Rifle Butts 3,500 yards from the objective or a tree or limber near **Kotwal** (the houses being avoided in view of probably enemy shelling). From such points, however, nothing could be seen of the progress of the flank attack once it has passed westward across the line of Karez near the **Grove**. Nor could very much be seen of any subsequent attack from the North on to **Kili Gul Muhammad**.

Alternative plans appear to be—

- (a) to bring the Battery into action under cover behind **Kotwal**, and control its fire from Battalion H.Q.;
- (b) to bring the Battery into action E. or N.E. of **Kotwal** and have the fire controlled from an O. P. in a tree or on a limber or rifle butt near the guns, confining my control to allotment of targets, etc.;
- (c) to bring 4 guns into action as in (a) or (b), sending a section to the right, flank to give "B" Coy. close support in the attack and subsequent consolidation or continued attack, until the remainder of the guns can get forward.

Of these (a) depends too much on the telephone, the ground being too open for visual signalling.

(b) would be all right until the latter stages of the attack and it would take time to get some or all of the guns forward after the attack had succeeded.

(c) gives me only two sections in action to cover the deployment of the infantry, but I think one section blinding **Pt. 5873**, and one section searching the Karez will be sufficient.

My plan accordingly is as follows :—

- (i) to bring four guns into action at once somewhere E or N. E. of **Kotwal**, with an O. P. near enough for voice control, from which **Umar Khan** and the line of Karez leading to the **Grove** can be seen. If unavoidable

these guns may go as far as the Butts and use one of them as an O. P. (3,500 yds. from **Grove** and 7,000 yds. from present position of enemy guns).

- (ii) I will take A group signallers and establish immediate communication with the O. P. from Bn. H. Q.
- (iii) At 08.45 hours these guns will open fire with one section on **Pt. 5373** and the other section ranging on the beginning of the line of Karez 300 yards from **Umar Khan**, searching back along it and finding the corrector.
- (iv) One section with B group signallers and 1 Lewis gun will remain in a position of readiness prepared if ordered to join the four guns in action.
- (v) The Commander of this section will reconnoitre towards **Pt. 5495** as soon as the infantry move off—but not before—so as to avoid calling the enemy's attention to their left flank. He will see if it is possible to bring a section into action in the neighbourhood of that point (2,500 yds. from the **Grove**) or closer in whence he can support the flank attack.
- (vi) If the Section Commander judges it possible to carry out these orders, he will do so without further reference. He must try and employ voice control and use his signallers for communication with me. Communication with the Coy. or M. G. Commander must however have precedence.
- (vii) The Battery Artillery Patrol will move to the North of this section and report any enemy movements observable toward our right.
- (viii) As soon as the Tanks are seen leaving **Umar Khan**, the four guns will fire 3 rounds G. F. on the line of Karez, 300 yards from the village, and will then fire 6 rounds G. F., adding 50 yards each round, thus searching back along the line of the Karez, the right guns shells falling clear of the Karez so as to blind the view of the enemy towards the flank attack.

The right section will use H. E. to get concussion and dust raising effect, and the left section shrapnel to search out the hollows of the Karez.

One section will then be put back on to **Pt. 5373** and one section on to the **Grove**, unless the observed course of the action indicates more important targets, or the Battalion Commander has other wishes.

(ix) As soon as **Pt. 5378** is captured the detached Section Commander will move forward and co-operate with the infantry in its consolidation.

(x) When the Battalion Commander moves forward to near **Pt. 5378**, I will resume control of this section and use it to cover the forward movement of the remainder of the battery or to initiate the artillery support of the further movement of the Infantry.

An examination of these Schemes will show that, however simple the orders to an Artillery Unit Commander may be, they create an Artillery Tactical Problem which requires the collection of certain data and the careful consideration of numerous points for its solution—in fact an appreciation; and that the solution must be embodied in a definite plan before the guns can be committed to action. The soundness and scope of that plan is as important as the accuracy of fire. The best trained section, handled by the quickest and most skilful of shots, is of no value unless it is in the right place at the right time. To get the guns in the right place at the right time requires forethought, the embodiment of which is the artillery plan. If batteries are brought into action without forethought there is a serious defect in training.

The rapidity of decision called for in the second problem has already been noted. Constant practice by Artillery Officers is required to attain a standard of speed, accuracy and thoroughness. But no special training of Officers of other Arms, who are already familiar with tactical principles, is needed to enable them to take a share in a discussion on the action of Artillery. Few intricate gunnery details enter into the problems here given. The points

considered are within the scope of all to appreciate. Moreover the views of the other arms are welcomed by the Gunners. The Tank Commander can say whether he thinks that the assistance which the Battery proposes to give to his advance is likely to be of value, or whether, if he had been consulted beforehand by the Battery Commander, he would have expressed his preference for an advance depending for effect and security on rapidity, unfettered by artillery covering fire. The comments of the Company Commander on the support of his flank attack by a detached section may be worth hearing. The Battalion Commander during the course of the exercise will have appreciated the impossibility of receiving further artillery support after the capture of the objective without a re-arrangement of observation and communication arrangements or a move of the guns, and can discuss the manner in which the plan proposed to deal with this. The question of preliminary registrations, moreover, always has an infantry point of view which the Gunner would like to hear.

Thus it will be seen how regrettable is any curtailment of discussion or criticism of artillery action at **Tactical Exercises**; how unjustifiable is any hesitation on the part of non-Artillery officers to take part in such discussions; and how desirable it is that means should be found for giving greater prominence to **Artillery Tactical Problems and Plans at Artillery Practice Camps**. Finally schemes such as those embodied in this article are suitable for inclusion in "Employment of Artillery" papers in promotion examinations and offer opportunities for the application of tactical principles, which is the object of all tactical training.

APPENDIX A.

SYSTEM OF COMMAND.

Whenever an individual is given a task to execute, he should:—

1. Make sure he understands the orders given.
2. Ask for all information available as to the enemy, and the position of his own troops.
3. Sit down and think out on the ground and—with his map—his best course of action. This will enable him to gain a general grasp of the situation.

4. If there is time, carry out a reconnaissance.
5. Make full use of his horse, if he is a mounted officer.
6. Then make his plan.
7. Communicate his plan to his subordinate commanders, if possible in view of the ground, in the form of short concise orders.
8. Adhere to the proper sequence in his orders :—
 - (a) Information as to his enemy.
 - (b) Information as to his own troops.
 - (c) Object of his plan (*i.e.*, his intention).
 - (d) Definite tasks allotted to each of his units in attaining this object.
 - (e) Position of his troops during the action.
9. Maintain the organization of units, and
 - *(a) If a company commander, allot tasks to platoons.
 - (b) If a platoon commander, allot tasks to sections.
10. Not try to look too far ahead, but should work by bounds. Thus he is able to keep control, reorganizing and allotting fresh tasks after each bound.

*Note.—Or for Company read Battery.

„ Platoon „ Section.

„ Section „ Sub-Section.

APPENDIX B.

MAKING A PLAN.

When preparing a plan of action the following points should be observed :—

1. OBJECT.—

What is the object it is desired to achieve?

2. ENEMY.—

What is he doing?

What is he likely to do?

3. OWN TROOPS.—

How does action of other bodies of own troops on the flanks or in support affect the situation.

4. GROUND.—

How can ground be used to the best advantage?

If full use of it is not made, it will favour the enemy.

5. What alternative plans are available?**6. The plan which is considered to be best (for definite reasons) should be adopted. The plan should be kept simple. Achieve surprise, if possible.**

APPENDIX C.**USE OF GROUND.****IN THE ATTACK.—**

The ground should be studied in order to find:—

1. Covered approaches, so that it is possible, unseen, to get close to the enemy.
2. Positions from which covering fire to assist the attack could be brought to bear.
3. Features, the occupation or capture of which will enfilade the enemy's position and enable a flank attack to be made in favourable circumstances.

IN DEFENCE.—

The ground should be studied in order to find:—

1. Facilities for observation, so that the enemy cannot approach unseen.
2. Positions difficult for the enemy to locate from the ground or from the air.
3. Covered approaches in rear of own positions, which will facilitate counter-attack and supply.

IN REAR GUARD ACTION.—

The ground should be studied in order to find:—

1. Positions from which long and medium range fire can be brought to bear on any approaching enemy.
2. Covered lines of retirement, so that retreat can be carried out unseen.

THE UNDER-GROUND CITIES OF "OLD" ANZAC.

By Colonel on the Staff C. M. Wagstaff, C.M.G., C.I.E., D.S.O.

I had expected that, after the war, some really technical descriptions would be given of the defensive works made by the Australian and New Zealand Army Corps in holding their position on the Gallipoli Peninsula; but I have seen none, and so perhaps a few notes which were made in December 1915 may be of interest now. These will not be strictly technical, but they will give some idea of the work that was done by that corps, by which the men were able to hold on to what would otherwise have been an impossible position.

We landed there on the early morning of the 25th April, and the 3rd Australian Brigade seized a ridge roughly 800 yards from the beach, and hung on to it while reinforcements were put ashore. These reinforcements came up into the line of the 3rd Brigade, and on both flanks, and at times efforts were made to get forward and gain ground; indeed, several parties are known to have got half a mile in advance of the inner crest of the ridge, and some parties and individuals further; but by nightfall the position held was the inner crest first seized, forming roughly a semi-circle round the main point of landing. It was this position which was held until the 19th December.

On that first day literally the inner lip of the ridge was held. The trenches in some places were only a few feet from the inner edge, which was the steeper of the two sides of the ridge. On that afternoon digging was commenced, and a good deal was done during the night. By the next morning, lengths of trench, perhaps three feet deep, were constructed along the front.

The interesting part of the formation of the "Anzac" position was the gradual development of those shallow firing trenches into what was eventually an underground city. The first step, naturally, was the deepening of those trenches so as to give good cover

and accommodation, and in those early days some undercutting was done from motives of self-protection against shrapnel; this undercutting was a source of some trouble later when the rain came. The next step was the connecting up of the isolated pieces of trench; and a third step was the straightening of this single line by sapping across the re-entrants. Then communications were made back from portions of the trench some way from the inner crest into the valley behind, where all supports and reserves at this stage were bivouacked in improvised cover on the slopes of the hill.

Very shortly afterwards forward sapping was commenced. At this period the direction of these saps was a little vague, and when the sap-heads came to be joined up, the front was very irregular. In a later period of our occupation, the forward sapping was carried out much more regularly and systematically, and, when the sap-heads were joined up, the resultant front was far more satisfactory. After about a fortnight, we could say that there were two lines of trenches with very fair communications between them, and a certain amount of communication to the valley behind. This shallow position was the one which was attacked in force by the Turks on the 19th May. The fighting was continuous over the front, when a very sufficient fire was developed from these trenches, and the artillery had by then so carefully registered the zones in front, that all the Turkish attacks were beaten off with a loss which we afterwards knew to have been about 7,000; we buried 3,000 between our trenches and those of the Turks. About this time, along the main ridge, our trenches were on an average 200 yards from the Turks' trenches. At points of contact like Quinn's Post and Courtney's Post, the trenches were closer; in fact, at Quinn's Post, from the very early days, the closest Turkish trench, which we have been into on three occasions, was twenty yards from ours.

Even in the small front we held—about 7,000 yards—there were great varieties of treatment necessary for the further development. Roughly there were three classes. On the extreme right we held a ridge, which sloped quickly down to a narrow valley, the crest of the next ridge being three hundred yards away. Then behind that ridge were others, with valleys, sometimes steep, sometimes

gradual, between them. Another class was on the main plateau in the centre of our position. We held the inner lip; the Turks were half way across the plateau, in places 500 yards wide. Again on our left we held a narrow knife edge running down to the sea, where no advanced or retired position was possible.

On the right among the ridges, we developed three lines of fire and support trenches along our own ridge, and made an advance on to the further ridges which will be described later. In this sector the three main trenches were cut in the orthodox way, and eventually were about six feet deep with firing recesses cut in the forward trench. But from that forward open trench an advance was made down the forward slope some twenty yards into what will become, I am sure, a pattern fire position.

Tunnels were run forward, necessarily at a slope, with the roof some three feet below the surface. The forward heads of these tunnels were connected up by a longitudinal gallery, which had a roof below the surface of from two feet to four inches thick, dependent upon accidents of the ground. From this longitudinal gallery were opened fire recesses to hold three men each. These were prepared entirely from below, and were not "unlidded" until all were ready and could be done all in one night. The line of recesses thus formed was for some months the main fire position on this plateau. Looked at from the front, as one could do when we advanced on the next ridges, these recesses were scarcely distinguishable at 150 yards, and, judging from the fact that not one of these was ever smashed up by shell fire, and that hardly any casualties occurred in them from rifle fire, I am strongly of the opinion that the Turks did not discover that firing line until we walked out of our position in December. So much for the right flank for the present.

In the centre, on the plateau, the trenches remained above ground for a longer period, and the underground activity was directed more towards tunnelling forward offensively against the enemy's trenches on the plateau, but at the end of June all along the plateau a longitudinal gallery was made, which was developed into a recessed firing line later.

Throughout all this period there was a great variety of ideas. Our front was held continuously by the same formations, and individual enterprise showed itself in a variety of ways. Though the whole way along the front of the 1st Australian Division, this system of forward trenches, made in the first instance underground and then "unlidded," was common, the New Zealand Division held rather a different type of country, where underground trench work was not so simple, and on Russell's Top, the only flat bit for it, the trenches were all done by open sapping until nearly the end.

Now there is one interesting point about these forward lines developed underground. Opposite the Turkish position, on the Lone Pine, the trenches were developed in time to make an invaluable jumping-off place for the famous attack on the Lone Pine redoubts. Four lines of men were launched simultaneously. Further North, where the 2nd Australian Brigade was stationed, another interesting thing happened. On their front these forward trenches had similarly been prepared, also with a view to offensive jumping-off places. Before the time for attack came, news was received that the Turks might attack us, and rather than forego the thirty yards of field of fire which we sacrificed by putting our line closer to the enemy, it was decided to utilise this forward line, not yet "unlidded," as an obstacle. The lids of the recesses were "fined" down to about six inches, so that the weight of a man running on them would break them in, this being done from below. The recesses themselves were filled with barbed wire, and the intention was to stand beside each a burly Australian with a bayonet. Unfortunately this attack never developed, and the efficacy of this novel obstacle was not tested. The recesses were eventually used as jumping-off places for a subsequent attack, but in this sector the Turks could see the recesses, and devoted a great deal of artillery attention to them, so that they were very much broken in, as were also the roofs of the connecting galleries; so it turned out that this advanced firing line here was not of much use for offence or defence, though it made an admirable barrack room for the garrison of the trenches behind, and a base for the very extensive offensive mining which was undertaken on the front.

There is one criticism to be made on this system of trench work; the "lids" of the tunnels were not thick enough in the first instance, and would not have stood real shelling. Also the numerous holes were a nuisance, as patrols might get in. Unless a line was fully occupied, the holes had all to be blocked up.

Courtney's and Quinn's Posts have a special interest. At Courtney's Post we held at first a shallow fire trench, built on the crest of a knife-edge which ran down into a broad valley, up which the Turks developed one of their chief attacks on the 19th May, but this was really the only place on a front of some fifty yards on which we actually dominated the Turkish positions. Courtney's Post eventually developed into a work with four lines of trench, the foremost one being of the underground variety. Quinn's would be worth reproducing in a museum in model form. Every sort of expedient was adopted to deal with the many crises which occurred in those nine months which the garrison spent twenty yards from the enemy. Most of the work was eventually underground, but it was originally cut as open trench work. The roofing material got stronger and stronger, and the accommodation safer and better, till at the end of it was a place the men preferred to be in rather than in more distant and more open portions of the line.

At this place our trenches were barely distinguishable from those of the Turks, in fact, our main trench was really a continuation of the Turkish Trench at the head of the "Bloody Angle," which remained in Turkish hands all the time we were there. In the debatable ground between Quinn's Post and the Turkish trench on the crest opposite, the ground was so shattered and scarred, that it was difficult, without knowing the place intimately, to know which were our trenches and which were Turkish, and which were trenches in which the Turkish dead had been buried. Our sentries in Quinn's Post sat in darkness facing a hole, round which a Turkish bayonet might come at any moment. Along these debated connections, in one place was a Turkish bombing post, which has been the scene of incidents which have been told in other places. But this post itself will bear description. The thrower stood behind a bombproof cover and threw over the roof, and the protection given by this bombing post seemed quite as

good as could be obtained in any form of post made under close grenade fire. Although this was destroyed by two New Zealand engineers in a gallant manner, it was repaired and used by the Turks for some months, and it forms a type which we might well adopt as our standard.

Pope's Hill is the next interesting point. The military genius of Colonel Pope, who hung on to this curious little spur for no apparent reason at the time, will ever be a point to be thankful for by all of us who knew Monash valley. The hill is in the middle of this main valley, which cut our position in two, and holding it alone made possible retention of Quinn's and Courtney's Posts, and prevented a serious attack down the valley. Until September, the trenches on Pope's Hill were shallower, narrower, and altogether more insignificant than any on other parts of the position. There were two reasons for this.

One was the hardness of the ground, it being the only place where rock occurred. The other was that the trenches were exposed to fire from three directions and in reverse, so that nothing except the narrowest trenches with broken traverses would serve to prevent heavy casualties. Another name chiefly connected with the developement of the Pope's Hill position is that of Colonel Rowell, of the 1st Light Horse Brigade, who, to everyone's sorrow, never lived to see the finish of its history. Major Glasgow carried on his work. These shallow trenches stood the heavy attacks which were made on them, and are a proof of what determined men, who can shoot straight, can do and stick. The bivouacs and support trenches of Pope's Hill were made in crannies on the reverse slope, which could be searched from most sides, but by some dispensation of Providence these never received a really bad doing. On Pope's Hill the trenches were developed in September into something more formidable and comfortable. This was due to the approach of winter, which would have been insupportable in the shallow trenches found sufficient during the summer. The 5th Brigade eventually constructed a work resembling those on other parts of the front.

Russell's Top—first called Walker's Top—has a history of its own. The original front faced eastward, and it was from that front that Captain Wallingford developed his machine gun batteries which did such yeoman service on the attack of 19th May, and later

in August, and which formed an invaluable support to all the works across the ravine throughout our occupation. The front facing northward along the narrow ridge was at first unimportant, but gradually it became the more important front, and developed into a very strong redoubt facing the enemy's work on the "Nek." When General Russell took it over, he first developed a strong fire line across the ridge terminating in Turks' point. It was constructed, as others had been, by sapping forward and connecting the sap heads. This first line was ultimately lost sight of in the extensions to the north, but it was that line which stood several attacks and has a particular interest. From this line General Russell sapped forward in three places, but the direction of the saps became at times irregular, and as from time to time the sap heads were connected across, forming a new fire line, the shape of the work became somewhat confused, and, though this did not lead to any serious consequences, it was a source of some inconvenience when the final line opposite the Nek came to be developed.

In all there were eight saps running forward, and for two months at least these somewhat haphazard saps remained unconnected in front in a continuous line; and though their edges were developed into fire lines, the position in this direction was distinctly hard to control. From the works on the crest of the ridge down to the cliff edge on the west, General Russell constructed among the bushes a secret sap—plain, open trench, four feet deep, but showing no earth or spoil, and quite hidden from the enemy. It was around this flank the enemy made their attack with the 18th Regiment in July. Judging by the line of the corpses the following morning, it was apparent that this secret sap, which at the beginning of the attack only contained six drowsy sappers, contributed largely to the successful defence. Later the front of Russell's Top was carefully developed with an underground line similar to the other fronts, and when the order for evacuation came, this line was ready, either for launching an attack, or for meeting Turkish assaults.

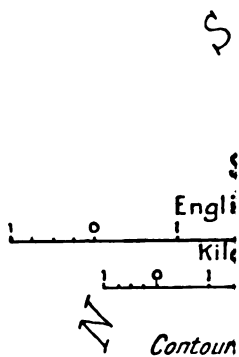
It was here, too, that the large mine was made, which in its conception was similar to the Messines mines two years later. This mine was exploded at the evacuation but not with its original purpose.

I have said nothing about the quarters and dugouts in rear of the fighting lines. These became very elaborate in course of time, and, had we stayed at Anzac for the winter, we should have had complete cover for all Headquarters, and reserve units, in tunnelled quarters, perfectly safe against any shelling except from the sea. It was a sad thing to go away and see all the labour wasted.

The men in the line felt the leaving very much. They had taken great pride in their trenches and dugouts. They wished to leave them in good order for the Turks to see. I remember going round the line the afternoon before the last party left Anzac. The men were busy tidying up and polishing the clay walls and roofs and repairing the floors tiled with a pattern of bully beef tins and cartridge cases.

The work that had been put into "Old" Anzac, was enormous. Few who have not seen it can realize what was done. On the 25th April, when there were some doubt as to whether the Australians and New Zealanders could hold on, Sir Ian Hamilton signalled an order to dig. They did dig—then and afterwards—and that was the chief thing that enabled them to hold for nine months the cliffs they had scaled that morning at dawn.

GALLIPOLI
Showing final British
Anzac and I



SECTION LEADER TRAINING.

*By Captain G. Brunskill, M.C., Adjutant, 2nd Bn.,
The R. U. Rifles.*

Everyone knows the mythical legend of Pandora and the famous locked chest which, when opened, set free a host of spirits of disease, famine and war into a hitherto happy and peaceful world, no doubt creating all the more havoc because no one anticipated such a calamity and all were unready.

The modern counterpart of Pandora's box might be said to be the Unit Mobilization Box which, when opened on receipt of that momentous telegram "Mobilize," lets loose as the "penny-a-liners" would say "the dogs of war."

But herein lies the difference; whereas the ancients could not anticipate the coming calamity, we can do so, and in consequence strain every muscle to prepare ourselves for it: and if the Army keeps its whole body in training for war surely the N.-C. O.'s—the backbone—require the maximum amount of attention.

Hence the birth of "Section Leader Training."

The problem of giving the young N.-C. O. a good grounding in his duties as such, both in peace and war, presents many difficulties. From his point of view, it is hardly fair to put a stripe on him and, before a week is out, expect him to lead his section in a Tactical Exercise or to carry out successfully the duties of Battalion Orderly Corporal: From the point of view of the Unit also this hardly spells efficiency.

All should be taught to regard the Section as the Fire Unit, the smallest tactical formation, and yet the largest number of men, that can be directly controlled by one leader in battle.

To lead a section is no easy job. Colonel Henderson in his "Stonewall Jackson," writing of the control of the American Civil War by civilians in Washington, says, "Men who, aware of their

ignorance, would probably have shrunk from assuming command of a squad in action, had no hesitation whatever in attempting to direct a mighty army."

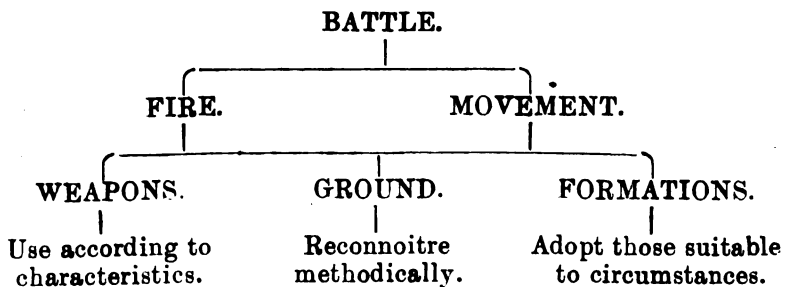
N.-C. O's are not required to lead mighty armies, but they must receive that training in Fire Tactics, Fire and Movement, Co-operation and *leadership* which will alone give them the confidence and power to lead their "squad in action."

A comparison between the Infantry Tactics of the present day and those employed in past history shows that greater scope is now given for the exercise of initiative and judgment on the part of the Infantry N.-C. O., in his rôle as a Section Leader.

Training of Section Leaders must cater for the mental development necessary to ensure that the leader will apply intelligently the guiding principles of Infantry Fighting to the varying conditions which confront him in different situations.

To get a foundation on which to base the training, consider the main object of Infantry in BATTLE (F. S. R., Vol. 2, page 22), "To close with the enemy and destroy him by killing or capture."

A rough idea of the Section Leader's key to success in Battle might look like this:—



The guiding principle of "Fire and movement" is stronger now than ever it was before and becomes still more so as the power of weapons becomes more developed.

FIRE is produced by **WEAPONS**.

MOVEMENT is organized and controlled by **FORMATIONS**.

Both are influenced by variations of **GROUND**.

1. **WEAPONS**, fall into two categories, *viz*:—

- (a) Those within the Platoon—section leader requires intimate knowledge,
- (b) Co-operating weapons—infantry section leader requires general knowledge of extent to which they can assist him.

Weapons and their characteristics within the platoon can best be shown by a simple demonstration, referred to later under the heading of "Lecture and Demonstration, Weapons," combined with illustration of their fire power and effect on the open range.

Section Leaders must receive a thorough grounding in the Indication and Application of Fire, and Fire Orders, *i.e.* to be able to control the use of the weapons under his leadership.

FORMATIONS.—Can be demonstrated and taught first on the barrack square and later in conjunction with ground. They are influenced by enemys' WEAPONS and nature of GROUND therefore the Section Leader must learn to choose the right formation in the right place.

GROUND.—The use of this can be satisfactorily taught only on the ground, especially by means of simple stalking exercises and elementary Tactical Exercises without troops.

Of these three inseparables, the employment of ground is by far the hardest to teach. The young leader must never cease to look at it and study it until he can read it like a book. After all ground is the book of books for the soldier for on its ever varying pages he has to play the game of his life.

The greatest care should be taken to instill such an interest in these three fundamentals that the habit of weighing them in the balance becomes second nature to the N.-C. O. In this way only, when suddenly confronted with a difficult situation in the heat and anxiety of that *real* exam—Active Service, will he be like the mathematician who has all the necessary formulæ at his finger's ends and so can find surely and speedily a correct solution to the problem.

The following is a workable method of imparting some of the necessary instruction to junior leaders. It is based primarily on the official booklet, lately issued in India, entitled "Section Leading in Attack and Defence."

Firstly, it is essential that the Battalion Training Cadre should be functioning as a real live show. This Cadre, composed of picked Officers and N.-C. O.'s who have qualified at Weapon Training and other Courses, was authorized by W. O. Letter 51-4560(M.T.), dated 15th September 1922, and came into action in England during the Individual Training Seasons, 1922-23, proving a decided success.

One of its primary objects is to train LEADERS and as such it is the medium through which the instruction to young N.-C. O.'s is given.

For a British Unit, in India the ideal composition would appear to be:—

1 Officer (Comdg.)	... (Qualified at a W. T. School. A good organizer).
1 Officer	... (Qualified at a P. T. School. A good drill instructor).
2 N.-C. O.'s	... (Qualified at a W. T. School).
1 N.-C. O.	... Assistant Instructor, P. T.).
1 N.-C. O.	... (Capable drill instructor).
Total—2 Officers.	4 N.-C. O.'s.

For an Indian Unit where probably only one B. O. is available, the second Officer could no doubt be found from among the I. O.'s.

So much for the trainers ; now for the "corpus vile."

It has been found that, for each Course, a total of about 20 is the easiest to handle and also the easiest to produce from a Regimental point of view, *i.e.* 4 per Company including Headquarter Wing.

4 syndicates, each of 5 N.-C. O.'s, competing with each other, works well.

Students should be struck off all duties for this period, and, to gain the best results, the following must be imbued with the "Section Leading" spirit and be prevailed upon to do their utmost to ensure success:—

- (a) *The Adjutant and R. S. M.*, so that no one is taken away in the middle for Garrison or Regimental Duties or Employ, and so that precis of Lectures, etc., may be produced by the Orderly Room.
- (b) *The Company Commanders and Orderly Sergeants*, so that Students are not spirited away on Company Parades and Duties which would interfere with their work.
- (c) *The Quartermaster and his Staff*, so that every article which it lies in their power to provide, is produced to assist demonstrations, etc.,
and lastly :
- (d) *The Instructors and Students themselves*, so that the utmost keenness and will to impart and to gain every particle of knowledge is kept up from start to finish.

A specimen syllabus for a complete course of 21 working days is given on page 113 and from this it will be seen that, in addition to the subject-matter contained in the booklet "Section Leading in Attack and Defence," instruction is given by the Drill N.-C. O., in Words of Command and Drill (up to and including Company Drill); by the Assistant Instructor P.T., in Physical and Recreational Training; Map Reading by one of the Cadre Officers; and simple Organization and Administration, for which the services of the R. S. M., could be requisitioned, if desired.

A good plan is to insist on students keeping note-books which should be inspected at intervals during the Course and, in addition, to issue at the commencement of each Lecture, demonstration, or exercise, a printed or duplicated precis of the subject containing the "meat," of the matter shortly and concisely: This checks the tendency of some to scribble down unnecessary notes and so to lose vital portions of the subject.

An example of one of these pamphlets is given below :—

SECTION LEADER TRAINING.

INTRODUCTORY LECTURE.

CHARACTER.—

1. *Unselfishness*.—Play for your side rather yourself.
2. *Loyalty*.—Loyalty to your Country down to loyalty to your Platoon Sergeant.
3. *Determination*.—Seeing a thing through and going on trying.

These qualities should have been yours when you first joined up.

SYLLABUS OF TRAINING.

As a recruit with "Character" you were taught how to act and how to employ your weapons in Battle.

Now you have to learn how to lead other men and control the use of the weapons they are armed with.

The Syllabus of Section Leader Training may be divided under two headings :—

1. Instruction in the three principal duties of a section leader in battle, each subject to be taken separately.
2. Instruction in the correct combination and application of these subjects.

The three principle duties of a section leader may be said to be his possession of a thorough knowledge of :—

- (a) The employment of the section weapons.
- (b) Use of ground.
- (c) Adoption of suitable formations.

It is essential that every pupil under instruction as a Section Leader clearly understands the distinction between the Rifleman's knowledge of these subjects, and the fuller knowledge necessary for the Section Leader.

WEAPONS.—

The Rifleman requires to be skilled in handling or serving the weapon in conformity with the instructions of the leader (Fire Discipline).

The Leader decides when the weapon will be used, the intensity of its use, the place from which it will be used and the target against which it will be used (Fire control).

GROUND.—

The Rifleman makes use of the ground he is told to occupy or move over. The leader selects the ground to be occupied or the line of movement.

FORMATIONS.—

The Rifleman is required to know and take up his correct position in any formation ordered. The leader decides which formation shall be adopted, and orders it accordingly.

N.-C. O's not yet near the pre-war standard. Much to learn, new weapons, new formations, new methods, and less chance, so far, of learning them.

READ A LITTLE AND THINK A LOT.

In your spare moments try and grasp the essential principles laid down in the manuals, Infantry Training, and Field Service Regulations.

KEEP A NOTE BOOK.

At the conclusion of the Course these precis can be bound in a cover under Regimental arrangements and so provide a lasting record for each individual.

The "Section Leading" precis may be taken almost direct from the booklet while Map Reading and other notes are given shortly and concisely in the Field Service Pocket Book.

The eye picks up details quicker than the ear so the more demonstrations the better.

British and Indian Units are allowed 500 rounds S.A.A., Tracer annually. (A. I. I., 182 of 1923); excellent use can be made of this to show trajectories and cones of fire which are such a difficult subject to explain verbally.

Here is a specimen of a demonstration on these lines :—

SECTION LEADER TRAINING.

Trajectories—Cones of Fire—Night Firing.

1ST DEMONSTRATION—

TRAJECTORIES.

2 Riflemen on 600 yards F.P. firing tracer at a 6 ft. target erected in front of the butts. Sights at correct range. Note how the trajectory differs from the line of sight.

Note figure targets erected on the intervening firing points. Would you be hit or not if you were in their places? Necessity for allowing for wind. Riflemen then fire with sights at 100 yards. Note necessity for correct sighting and higher trajectory caused by incorrect elevation. This demonstration will first be viewed from a flank and then from behind the firers.

2ND DEMONSTRATION—

CONES OF FIRE.

- (a) *Rifle.* A section of 6 Riflemen on 600 yards F.P. fire one round tracer all together at a 6 ft. target on the command 'Fire'. Note the shape of the Cone.
- (b) *Lewis Gun.* A L.G. Section (Gun only) fires tracer at a 6 ft. target. How does cone compare with that of rifles?

3RD DEMONSTRATION—

NIGHT FIRING (300 yards firing point).

- (a) *Rifles in Rests* aligned by daylight on a fixed point in the enemy lines for sniping by night. Fixed point represented by a 6 ft. target raised from the butts in No. 8 Frame. Tracer fired results obtained from butts.
- (b) *Rifles fired in the ordinary way—*
 - (1) A Post occupied by a Rifle Section and L. G. Section Sentries posted, remainder rest.
 - (2) Figure targets raised.

Sentries rouse the Sections.

Position of readiness adopted.

Section Leaders order Fire.

A percentage of tracer will be fired.

Another simple and effective display is called in the syllabus, "Lecture and Demonstrations—Weapons."

This consists in :—

- (a) Laying out against the wall of a Barrack Room the complete set of arms, S.A.A., and grenades as carried into battle by the four sections of a Platoon,
and
- (b) Parading a specimen "War" Platoon with every one of the above articles in its right place and carried correctly.

This is where the Quartermaster can assist in providing such articles as wire cutters, discharger pouches, etc.

The question of an examination requires a good deal of thought. It is obvious that some kind of test is necessary and if this is so arranged that the passing of it qualifies the successful candidate for promotion (K. R., para. 872)—in conjunction of course with the required Educational Certificate—two birds will be killed with one stone.

The suggested form of examination falls naturally under two heads.

(a) *Practical*—

On the square a platoon, made up to strength, is paraded in Drill Order and each member of the class is given a few movements to carry out, including at least one Arms drill movement.

Marking to be carried out independently by two Officers whose totals are added together subsequently and the student awarded the average so obtained.

Marks allotted as follows :—

Word of Command	...	...	...	40%
Bearing	...	..	...	30%
General knowledge	...	...	...	30%

A P. T. squad could also be introduced, if desired.

(b) *Written*—

On A. B. "4" if available.

Questions hectographed and handed out at commencement of Examination.

Time limit, 2—3 hours.

10 questions of varying mark value (to be stated against each).

Approximately :—

5 questions on Section Leading.

3 questions on Map Reading.

2 questions on Discipline and Administration.

A specimen question would be something like this :—

“You are in command of a Rifle Section in the attack; under what conditions do you consider you could make the best use of your Rifle Bombers? (10 marks).”

Pass Marks (in both exams.)	60%
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Special mention (in both exams.)	85%
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So much for the organization of a Section Leader's Course, and it does require a good amount of care and thought if it is to be a successful one.

This type of general course can be employed in a modified form with good results as a method of ensuring that W.O's and N.-C. O's of the Permanent Staff, A.F.I. and I.T.F., are kept in touch with the latest developments in training during their months' annual refresher period with a Regular Unit.

Provided it can be arranged that at least eight to ten Staff Instructors are present with a Unit at one time, the working out of a comprehensive course on these lines is an easy matter.

A series of Lectures with rather a wider scope than for Section Leaders, combined with instruction in the Vickers Gun, the organization of Boxing and Athletic Meeting and the method of conducting Tactical Exercises without Troops are useful subjects to embody in the syllabus.

In all these courses, make out a clear progressive programme and stick to it. Nothing breeds lack of interest so much as a syllabus which is a moveable feast and instructors who are slipshod and devoid of method.

Any N.-C. O. worth his salt is keen to be proficient at his job and to climb higher up the ladder; it is hoped, therefore, that the foregoing pages have pointed the way towards giving him the helping hand to which he is entitled, and preparing him to take his place as a leader of men.

THE SOLUTION OF TACTICAL PROBLEMS OFF THE MAP.

By Colonel R. J. Collins, C.M.G., D.S.O.

II.

1. In the article published in the October number of this Journal, I endeavoured to show how to solve a tactical problem on outposts, which was set as the first problem in the first Training for War paper of the Staff College entrance examination for 1924. I now propose to work out a solution to the second problem (see A attached). I propose to apply the same methods of tackling that problem, but, before doing so, let me once again remark that the solution when reached will be one only of many possible and equally sound ones.

2. This time we are definitely asked for an appreciation. But first of all, let us again make up our minds as to just what is required by the examiner. In our previous quick glance through the paper, we noted that the problem dealt with a force consisting of the 2nd Infantry Brigade, with various attached troops, which was to act as right flank guard to the 1st Division, while the latter continued its advance north towards the river Aisne. The sudden despatch east of this detachment is due to the unexpected appearance of a hostile force of at least two brigades some 25 miles off on the other side of the river. The type of operation, with which we have got to deal, is therefore plain.

3. As before, the next thing to do is to get the situation quite clear: whom you represent: where are your headquarters; what troops you have under your command, and where they are. In this case, as the situation is considerably more complicated, it will probably be quickest in the long run to put it down in diagrammatic form, roughly as shown at the end of this article.

4. Now what about the enemy? It will be advisable to mark in pencil on the map the heads of his two columns. Then study the map for some minutes. Use your dividers, putting the distances as you measure them on your diagram. That done, jot

down the headings—"factors" if you like—under which you will argue the problem out, or which you think will require consideration.

You are now ready to make your appreciation. But in it you cannot afford time to do more than put down very shortly in note form enough to make clear to the examiner your line of thought. I suggest that you write it out, allowing yourself at the outside a quarter of an hour, and then compare it with the suggested appreciation which you will find on page 121.

5. You are next asked for your orders, "in the form in which they would be dictated at about 04-45 hours." That is probably as soon as you will be in a position to give detailed orders, but there is a good deal to be got through before then.

As before, it will, I think, be worth while at this point to cut ourselves adrift from the academic discussion of a theoretical problem on the map, and to consider the procedure at Brigade Headquarters and the order of priority in which the work would be tackled.

We will presume that the map was marked up by one of the Brigade staff as the message given in the narrative was read out, and that the diagram has been made out as shown on page 127.

It cannot be very long before the Brigade Commander and his staff realise that time is vital, and that there are two obviously urgent orders to be issued—

- (a) An order to the lorries at EPOYE and possibly to the troops there as well.
- (b) A warning order to the troops.

The most urgent concerns the lorries and troops at EPOYE. The time and space calculations, as given in the appreciation, provide data for this message.

The next is to warn the remainder of the troops of what lies before them. All units probably went to sleep last night expecting to march north this morning in support of the 1st Infantry Brigade, and they should be given the opportunity of re-orienting themselves, as it were, and of realising what a very different rôle lies before them.

These two orders can be issued separately or combined into one general message. I suggest that you now set to work and write out, on a signal message form, the instruction you would send and then compare the result with that given on page 123. You should limit yourself to ten minutes in all for this.

6. The first of these messages is a simple one, but none the less a little forethought will probably save a lot of trouble and possibly delay later. Any staff officer with imagination would already have begun to picture to himself the situation about 05-00 hours in the streets of PONT FAVERGER, when a number of units will be falling in in the dark and taking Lewis guns, Vickers guns and ammunition out of limbers preparatory to 'embussing'. Simultaneously with this will arrive some 80 lorries and a tank company. There are all the ingredients here for chaos. A few minutes quiet thought as to the wording of the message may prevent this. Hence the placing of the Pack Artillery in the rear busses. It is always advisable to lay down the average speed to be maintained by a bus column. Only the Commander of the force can know the degree of urgency in a case of this kind.

The second message is a normal warning order. It is a good thing to start the message with those two words. They convey at once to the reader the idea of something new, a change of plan, and so ensure instant and careful attention. The difficulty always in such an order is to keep it short. Here again it is a case of knowing what information is essential. When it is a case of getting troops on the move, the essentials as a rule are the hour of start, the road to be taken, or at least the direction, and possibly the starting point.

In both messages, it is worth while noting that, however short the body of the message itself can be kept, the distribution of the message, as conveyed by the "addressed" and "repeated," tends to make it unduly long. This cannot be avoided, because it must be remembered that, where a message is telegraphed, in the "address to" portion of the addressee's copy only the addressee's official abbreviated title appears. So that, without his "addressed" and "repeated," it would be impossible for any one recipient to tell who else had received the message.

7. By the time these two messages have been sent the Brigade Commander will have got sufficiently far in the working out of his plan for the Brigade-Major to be able to get on to the details. As the orders are to be dictated to units, he will probably prepare notes only.

The Brigade Signal Officer should have been called in. The sooner he knows what is on, the better the inter-communication work will be later on, and it is obvious that this will play a more than usually important part in the day's operations.

Even a really quick brigade staff will hardly have checked their time and space calculations before representatives of units begin to assemble at 04-30 hours. The Brigade Intelligence Officer should, therefore, be ready to receive them. He should first see that they all have the right map, then give them the latest situation and see they mark it on their maps. The Brigade Commander will then be able to commence right away with his appreciation of what the enemy is likely to do and how he proposes to checkmate him.

You should now take the suggested appreciation given on page 121 as a basis, and, allowing yourself say twenty minutes, should write down the orders you would dictate to representatives. The normal operation order form should be used and the length of the order rigidly curtailed, a page to a page and a half of foolscap being sufficient.

8. A few remarks as regards this order may not come amiss. As regards para. 1 (b), information as to our own troops is given, working from right to left. It should be noticed that the intention of the higher commander, as regards the rôle of the 2nd Infantry Brigade, is given under this para., viz., as "Information of Own Troops," and not in para. 2. This latter para. should be reserved solely for the intention of the commander of the formation or unit issuing the order. The more obviously it is the commander's own intention and no one else's the better. For it is to this para. that the subordinate commander will rightly turn when he is out of touch temporarily with his superior and operations are not going "according to plan." A good intention para. should give the subordinate commander a clear line on which to act when in doubt,

It should be noted also that, although separate instructions are being issued both to the cavalry and to the Royal Air Force, an outline of the duties allotted to them is included in the order, so as to ensure everybody's knowing what they will be doing. No definite route has been allotted to the cavalry. It is inadvisable to do so normally, and a reference to the map will show that, in this particular case, the Officer Commanding the cavalry regiment may well elect to move on MAZAGRAN, not *via* the main road, but by the third class road leading straight from MACHAULT on CONSTANTINE.

As regards inter-communication, three points at which Advance Brigade Headquarters will be established are given, but a time only for the opening at the first. It is difficult to foresee beyond this, but both the cavalry and the Royal Air Force, on their way back with information, will be on the look out for Advance Brigade Headquarters at the more easterly points selected, and the fixing of them thus in advance may save valuable time.

9. There remain only the instructions to the cavalry and Royal Air Force. It is doubtful if the time available for the whole of this problem, not much over one hour in all, would allow of such instructions being written down. But since they are often, I believe, somewhat of a thorn in the side of the Staff College candidate, I have given a suggested solution on page 126 and it will be good practice to write them down also.

I have made somewhat of a departure in this solution by combining the instructions into one. It seems common sense to do so in this case, as it saves a certain amount of duplication and each must of necessity have a copy of the instructions given to the other.

I am convinced too that, in reconnaissance at any rate, the best results will be obtained by asking both cavalry and Royal Air Force roughly the same questions and requiring them to produce the answers to those questions at the same time and place. The commander should then be well placed for taking action on information which should be as reliable as information ever can be in war.

As regards these instructions, note that the cavalry in para. 1 (a) and (b) are given a dual rôle; as a rule they should be given only one duty to perform at one time. Nothing is harder than to limit oneself to this as—in war at any rate—there are seldom sufficient cavalry for the work required of them. But in this case I think that the presence of a whole cavalry regiment allows of their being given two tasks. These tasks too are not so dissimilar nor so exacting that they cannot be carried out at the same time.

It should be noted that, though in para. 2 the front on which the cavalry are to operate is definitely laid down, the roads by which they are to advance are not. That is left to the discretion of the Officer Commanding, Z Cavalry Regiment. Note too that in para. 3 definite questions are asked. What the Officer Commanding the regiment sends in order to obtain answers to those questions, and how he sets about it, is his business, and no interference with this is necessary or advisable.

Similarly, in para. 4, the Royal Air Force are given their rôle. How the Officer Commanding the squadron carries out his instructions and, the strength that he allots to each task, is his affair. But it is of very great value to him that the duties he is asked to perform are given him in an order of priority. For, in his case, it may well be that the force available may be found insufficient to carry out all three duties, at any rate at one and the same time.

As regards para. 5 (a), it is worth noting that, as laid down in Field Service Regulations, Vol. I, page 103, the places are given clockwise starting from the north. Nothing is more annoying to the examiner than to find, after searching the map for several minutes, that the names have been given anti-clockwise. The information asked for in 5 (b) may mean a machine going down low to make sure, with all that this may entail. Such information should not be asked for without due thought on the part of the commander, who should realise what he is asking, and that the information is so urgently required as to make the risk worth while.

10. The student can, with little further trouble, set himself a series of additional tactical problems based on this flank guard scheme, the solving of which—if tackled methodically on the lines

I have endeavoured to outline—will provide him with good practice, and which will, he will find, become increasingly easy to solve.

Throughout, though, he must keep in mind the time factor and gradually train himself to an instinctive knowledge of the essential of each problem. With such knowledge he will be able to laugh at even the much dreaded Training for War papers in the Staff College examination.

NARRATIVE.

Reference Map at end.

1. At 03-30 hours, 27th February, orders to the following effect, from 1st Division, were received at Headquarters, 2nd Infantry Brigade, at PONT FAVERGER :—

Enemy is advancing in two columns strength at least two infantry brigades, with some tanks and a few mounted troops, on the BRIEULLES (1 K)—VOUZIERS (2 I) and on the GERMONT (1 K)—LONGWE (2 J) roads. March was delayed and disorganised during the afternoon of 26th February by our air attacks but heads of columns by nightfall were reported to have reached QUATRE CHAMPS (1 J) and LONGWE. VOUZIERS Bridge is being bombed during night. Enemy attacked our outposts astride Roman Road 01-00 hours but was repulsed though fighting still continues in woods north-east of AUSSONCE. 1st Infantry Brigade supported by 3rd Infantry Brigade will continue advance at 08-00 hours on 27th February on JUNIVILLE and AMBLY (1 F) with a view to seizing crossings over River AISNE. 2nd Infantry Brigade will act as right flank guard during advance and will endeavour to delay the two newly reported hostile columns east of SOMME-PY (3 G)—ATTIGNY (1 G) road during to-day. 1st Cavalry Brigade (less one regiment allotted 2nd Infantry Brigade) is operating with same object south of the HAUVINE—SEMIDE (2 H)—VOUZIERS road, and will be clear and south of PONT FAVERGER—HAUVINE road by 05-00 hours. Following troops allotted 2nd Infantry Brigade. “Z” Regiment 1st Cavalry Brigade; 1st Pack Artillery Brigade (less one battery); 1 Company Tanks; 1 Field Company R.E.; 1 Squadron R.A.F. (Scouts), is available to assist in addition to usual contact patrol. Representatives of these units will report Headquarters 2nd Infantry Brigade at 04-30 hours. 80 lorries now at EPOYE (3 C), available if required.

2. 2nd Infantry Brigade with one field ambulance is billeted about PONT FAVERGER. Pack Artillery Brigade, Company Tanks, and Field Company, R.E., are at EPOYE. "Z" Regiment, 1st Cavalry Brigade, is at BETHENVILLE.

Question 2.—As Colonel Commandant, 2nd Infantry Brigade:—

- (a) Appreciate, shortly, the situation.
- (b) Write down your orders in the form in which they would be dictated to representatives of units at your headquarters, say at 04-45 hours, 27th February.

APPRECIATION.

*By Col.-Comdt., 2nd Inf. Bde., Pont Favenger.
03-45 hours, Feby. 27th.*

(a) *Object*—

2nd Inf. Bde. with attached troops is to act as right flank guard to 1st Div., delaying during to-day a force probably twice its strength east of the SOMME-PY—ATTIGNY Rd. which runs north and south some 14 miles east of here.

(b) *Course open to enemy*—

Not likely to have advanced much further west than QUATRE CHAMPS and LONGWE last night. May move N.-W., W. or S. W. Bridges and roads suit advance N.-W. and W. on PAUVRES best. This is worst case for us. Cannot safely rely on bombing of bridge at VOUIZIERS to delay enemy advance seriously.

(c) *Courses open to me*—

Cannot make definite plan until I know whether enemy is crossing R. AISNE and which way he is coming. Information therefore first essential. Must order reconnaissance at dawn both in air and on ground and arrange for it to reach me where I can act on it at once.

In view of enemy's superior strength I must keep concentrated. Not easy as troops move different paces. Also speed is vital as the further east I can get, the more elbow room. So must take risk and send all fast moving troops on ahead. Rest must come along as fast as they can.

I have endeavoured to outline—will practice, and which will, he will find to solve.

Throughout, though, he must keep and gradually train himself to a essential of each problem. With to laugh at even the much in the Staff College examination

NA

Refere

1. At 03-30 hours, 27th effect, from 1st Division Infantry Brigade, at PO

Enemy is advancing infantry brigades, w the BRIEULLES (1 (1 K)—LONGWE nised during the but heads of QUATRE CH being bomb astride Ror still cont Brigade

at 08-00 g 20 men per lorry, 80 lorries will carry 1,600 men or (1 F) ty. will also be most valuable. Danger of partial im- Infa ty once debussed worth risking. I can take all 8 guns wil th 50 rds., p. g. if I leave 1 Co. of B. Bn. It will be useful too as escort to transport. Would like to take R. E. as well, but not vital. Can send on 25 on cycles.

(g) Plan—

(i) To advance in two columns, one fast moving consisting of Cav. Regt., Tanks and two battalions (less 1 Co.) and P. A. Bde. in lorries; the other slow, following in rear.

First objective MACHAULT, second MAZAGRAN, third east edge of plateau on line BOURCQ-QUILLY. I shall move at head of Bus Column.

of the Map.
balance is billeted
s. Co. Company
E. 7.
Bri-

Warning Order
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A Bn. and
Bn.

with slow column) will leave
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instructions issued.
Bde. Hdqrs. A. Bn.
st.), P.A. Bde. with
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ETHENVILLE
—CAUROY—
X, D. Bn.,
C. Bn.,
agt., P.
F.
der
18

2.—ORDER TO

Tank Co.
Bde. F. Co.
and Inf. Bde.
O.100. 27

Bus. Co. will pick up at once dismounted personnel F. Co.
and P. A. Bde. with 50 rds. p. g. less animals latter in rear 10
busses and followed by Tank Co. will proceed at 8 m.p.h. to
PONT FAVERGER where R. E. will debus. AAA Bus Co. will
halt with head at Level Crossing $\frac{1}{4}$ mile N.-E. PONT FAVERGER
Church ready to embus at 05-00 hrs. A Bn. and B Bn, less 1 Co.,
AAA ACK AAA Addsd. Bus C., Pack Bde., Tank Co., F. Co.
Reptd. 1st Div.

Time 03-45 hrs.

Sent Priority by wire. Also by M. C. D. R.

B.—Second Message.—WARNING ORDER TO 2ND INF. BDE. AND
ATTACHED TROOPS.

To—	A Bn.	Z Cav. Regt.	F. Amb.
	B Bn.	F Co.	1st Cav. Bde.
	C Bn.	P. A. Bde.	1st Sqn. R.A.F.
	D Bn.	Tank Co.	1st Div.
From	2nd Inf. Bde.		
O-101	27.		

(d) Ground—

Last edge of plateau running parallel to and about 4 miles west of R. AISNE is obviously best ground on which to check enemy. Road junction at MAZAGRAN appears to be focal point and I must concentrate near there as soon as possible. But, as enemy can probably get there first (VOUZIERS to MAZAGRAN 9 miles, PONT FAVERGER to MAZAGRAN 16 miles), must have an intermediate objective. MACHAULT appears best.

(e) Time and Space—

Head of either enemy column, if they move at dawn, can reach MAZAGRAN (9 ms. at 3 m.p.h.) by 09-00 hrs., advanced troops say 08-00 hrs.

My Cavalry and Tanks, and whatever troops I decide to put in lorries, can reach MAZAGRAN (14 ms. at 6 m.p.h. if unopposed) by 08-00 hrs. if they start at 05-30 hrs. Vital to prevent enemy reaching MAZAGRAN, so must try to get them off earlier. It is now 04-00 hrs. They can start at 05-00 hrs. if busses (2½ ms. off) are ordered up at once and a warning order issued to troops. Cav. Bde. clears road by this hour. It is not light till 06-15 hrs. This means 1¼ hour's march (8 miles) in dark, *i.e.* as far as MACHAULT for Cavalry. This can well be risked.

(f) What to put in lorries—

Allowing 20 men per lorry, 80 lorries will carry 1,600 men or 2 Bus. Arty. will also be most valuable. Danger of partial immobility once debussed worth risking. I can take all 8 guns with 50 rds., *p. g.* if I leave 1 Co. of B. Bn. It will be useful too as escort to transport. Would like to take R. E. as well, but not vital. Can send on 25 on cycles.

(g) Plan—

(i) To advance in two columns, one fast moving consisting of Cav. Regt., Tanks and two battalions (less 1 Co.) and P. A. Bde. in lorries; the other slow, following in rear.

First objective MACHAULT, second MAZAGRAN, third east edge of plateau on line BOURCQ-QUILLY. I shall move at head of Bus Column.

(ii) Close reconnaissance machine R. A. F. and Cavalry to reconnoitre at dawn in advance of fast column sending me information at pre-arranged spots by certain hours. Scout Sqn. R.F.A. to protect fast column from dawn and to attack head of northernmost enemy column, if there are two, as soon as located.

(iii) As soon as line of hostile advance is discovered, I will decide on my further action; my idea being to delay the least dangerous enemy column, if there are two, and concentrate on other.

(iv) Lorry column to return if possible to pick up other 2 Bus.

A.—First Message.—ORDER TO TROOPS AT EPOYE.

To—	Bus. Co.	Tank Co.	1st Div.
	P.A. Bde.	F. Co.	
From	2nd Inf. Bde.		
	O.100.	27	

Bus. Co. will pick up at once dismounted personnel F. Co. and P. A. Bde. with 50 rds. p. g. less animals latter in rear 10 busses and followed by Tank Co. will proceed at 8 m.p.h. to PONT FAVERGER where R. E. will debus. AAA Bus Co. will halt with head at Level Crossing $\frac{1}{4}$ mile N.-E. PONT FAVERGER Church ready to embus at 05-00 hrs. A Bn. and B Bn, less 1 Co., AAA ACK AAA Addsd. Bus C., Pack Bde., Tank Co., F. Co. Reptd. 1st Div.

Time 03-45 hrs.

Sent Priority by wire. Also by M. C. D. R.

B.—Second Message.—WARNING ORDER TO 2ND INF. BDE. AND ATTACHED TROOPS.

To—	A Bn.	Z Cav. Regt.	F. Amb.
	B Bn.	F Co.	1st Cav. Bde.
	C Bn.	P. A. Bde.	1st Sqn. R.A.F.
	D Bn.	Tank Co.	1st Div.
From	2nd Inf. Bde.		
O-101	27.		

Warning Order AAA Z. Cav. Regt. will march on MACHAULT at 05-00 hrs. AAA A Bn. and B. Bn. less 1 Co., will be ready embus same hour AAA leading bus halts at Level Crossing $\frac{1}{4}$ mile N.-E. PONT FAVERGER Church AAA Tank Co. in rear of busses AAA. Remainder with F. Co. and animals Pack Bde. will march at 05-30 hrs. on MACHAULT AAA ACK AAA. Addsd. A B C D Bns., Z Cav. Regt. F. Co., P. A. Bde., Tank Co., F. Amb., Reptd. Cav. Bde., Sqn. R.A.F., 1st Div.

Time 04-00 hrs.

Taken by hand by unit orderlies where possible. Sent priority by wire. Also by M. C. D. R. to Z Cav. Regt.

C.—2ND INF. BDE. ORDER No. 100.—SECRET. COPY No. 1.
PONT FAVERGER. 27th February 1923.

Rfoe. $\frac{1}{100,000}$ Map REIMS.

1. INFORMATION.

(a) *Enemy*.—1st Inf. Bde. outposts astride Roman Road repulsed hostile attack at 01-00 hrs.

Two hostile columns, about one Inf. Bde. each, reported night-fall 26th to have reached QUATRE CHAMPS (1 J) and LONGWE (2 J) respectively. March of both delayed by our air attacks.

(b) *Our troops*. 1st Cav. Bde. is operating south of HAUVINE-SEMIDE-VOUZIERS Rd. 1st Div. is continuing advance to-day *vid* JUNIVILLE on AMBLY.

2nd. Inf. Bde. is to act as right flank guard and has been ordered to delay above two hostile columns east of SOMME-PY (3 G)—ATTIGNY (1 G) Rd. to-day. 1 Sqn. R.A.F. will assist. Z Cav. Regt., 1st P.A. Bde. (less 1 Batt.), A. Co. Tanks and 1st F. Co., R.E. attached.

2. INTENTION.

Bde. Comdr. intends to advance on MAZAGRAN in two columns, a fast column to move at once, preceded by Z Cav. Regt. and a slow one to follow. Any enemy met west of the line CONTREUVE—BOURCQ—QUILLY—COULOMMES, will be attacked and driven off the high ground.

3. METHOD OF ADVANCE.

- (a) *Z. Cav. Regt.* (less 1 troop with slow column) will leave BETHENIVILLE at 05-00 hrs., and moving at 6 m.p.h. on MAZAGRAN, will protect the movement of the fast column. Separate instructions issued.
- (b) *Fast Column* will consist of Adv. Bde. Hdqrs. A. Bn. (less Tpt.), B.Bn. (less 1 Co. and Tpt.), P.A. Bde. with 50 rds. p.g. (less animals) all in lorries and A Tank Co. in that order. Head to pass BETHENIVILLE Station at 05-30 hrs. Route HAUVINE—CAUROY—LEFFINCOURT.
- (c) *Slow Column*, under Command of Lt.-Col. X, D. Bn., will consist of Tp. Cav., Rear Bde. Hdqrs., C. Bn., 1 Co. B. Bn. (with A. Ech. Tpt. of Z Cav. Regt., P. A. Bde. and A. and B. Bns.) D. Bns. (less 1 Co). F. Co., R. E. F. Amb., B. Ech. Tpt. of all units under escort 1 Co. D.Bn. all in order named. Head to pass X Rds, N.-E. of PONT FAVERGER at 05-45 hrs. Main road through PONT FAVERGER to be kept clear till lorry and tank column has passed. Route as for Fast Column.
- (d) *R.E.*—All cyclists of F Co. will proceed at 6 m.p.h. in advance of Slow Column and will report to Adv. Bde. Hdqrs. on route named.

4. R.A.F.—(Separate instructions issued.)

Close Reconnaissance Machine will reconnoitre with view to discovering hostile line of advance.

Scout Sqn. will protect Fast Column from dawn and will attack the hostile columns, the northernmost if there are two, as soon as located west of the R. AISNE.

5. INTER-COMMUNICATION.

Bde. Hdqrs. will close at PONT FAVERGER at 05-00 hrs. Adv. Bde. Hdqrs. will move at head of Fast Column and will establish report centres as follows :—

First—Eastern end of MACHAULT from 06-30 hrs.

Second—Eastern end of LEFFINCOURT.

Third—MAZAGRAN.

A.B. Bde.-Maj.

6. ACKNOWLEDGE.

2nd Inf. Bde.

Issued at 04-45 hrs. to—

D.—INSTRUCTIONS TO CAVALRY AND R. A. F.—SECRET.

COPY NO. PONT FAVERGER. 27th February 1923.

Issued with 2nd Inf. Bde. Order No. 100.

Rfca. $\frac{1}{100000}$ Map REIMS.

A.—Cavalry.

1. ROLE.

Z Cav. Regt. (less 1 Tp.) will leave BETHENIVILLE at 05-00 hrs. and will—

- (a) Cover the advance of the Fast Column moving on MAZAGRAN.
- (b) Ascertain the line of advance West of the R. AISNE of the two hostile columns reported last night at QUATRE CHAMPS and LONGWE.
- (c) If and when close contact is obtained by main body, with enemy, clear front to North and protect left flank.

2. METHOD OF ADVANCE.

- (a) 1st Bound to MACHAULT which should be reached about dawn.
- (b) 2nd Bound to line SEMIDE—MAZAGRAN—COULOMMES.
- (c) 3rd Bound to line R. AISNE between FALAISE and VONCQ.

3. INFORMATION REQUIRED.

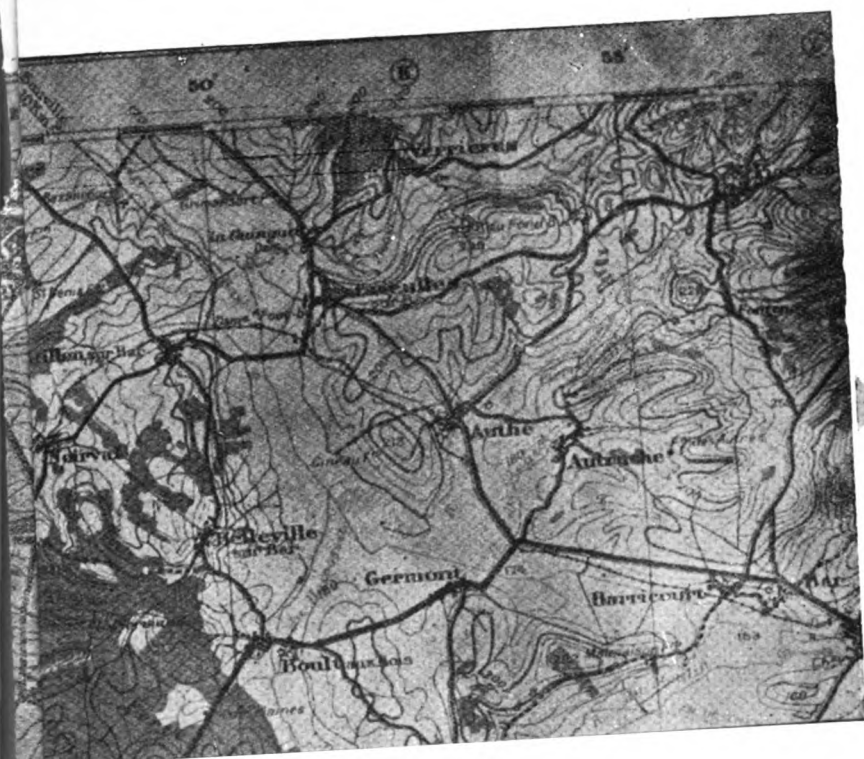
- (a) Presence of enemy or otherwise on line of 2nd Bound to MACHAULT by 08-30 hrs.
- (b) If answer to (a) is in negative, presence of enemy west of R. AISNE to MAZAGRAN by 10-30 hrs.

uziers 6ms.
uatre champs 10ms.
Mz.

Longue
9ms.

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2m





B.—R. A. F.

4. ROLE: in order of priority :—

- (a) To obtain information.
- (b) To protect the movement of the Fast Column.
- (c) To delay and disorganize the advance West of the R. AISNE of the two hostile columns, concentrating on the northernmost column if there are two.

5. INFORMATION REQUIRED.

- (a) Presence of the enemy or otherwise in Area QUATRE CHAMPS—LONGWE—VOUZIERS—MAZAGRAN—COULOMMES—VONCQ. Position of heads of hostile columns.
- (b) Is traffic coming over VOUZIERS Bridge? If not, extent of damage?
- (c) If answer to (a) is in negative, information as to whereabouts of two hostile columns reported at night-fall, 26th, east of R. AISNE.

6. INTER-COMMUNICATION.

Answer to (a) to be dropped by 07-00 hrs., first on Z Cav. Regt. and then on Adv. Bde. Hdqrs. at MACHAULT or LEFFINCOURT.

A. B. Bde.-Major,
2nd Inf. Bde.

Issued at 05-00 hrs. to—

1st Sqn. R.A.F.

Z Cav. Regt.

1st Div.

1st Cav. Bde.

OPERATIONS IN BRITISH SOMALILAND, 1920.

By Major C. A. L. Howard, D.S.O., M.C.

When I read Group-Captain Chamier's article, which appeared under the above heading in the January number of the *U. S. I. Journal*, on my return from leave a few months ago, it was not my intention to reply; partly because I do not want to squabble over what the writer aptly describes as "so good an example of operations by two services combined to a common end;" and partly because I am not sure there is a great deal to answer. However I came on his article again the other day, and on this occasion my natural "argumentativeness" has proved too much for me.

In the first few lines of his paper the writer correctly quotes my "objective," but I suggest he has not opposed any serious argument.

My reference to the preliminary discussions was intended to show that the Air Ministry was determined on an independent policy; and the writer's own admission that "the G. S. at the War Office were very much averse to this independent air attack" seems sufficient for the purpose.

With the above exception I have, for the most part, no comment to make on Group-Capt. Chamier's preamble, except that it does not appear to have much bearing on the main issue.

I would, however, like to take up the tale from the point where "the military authorities submitted their plan;" and in this connection the writer says "it is hardly conceivable that the Mullah could have been ignorant of a movement of this magnitude to a point over 50 miles in advance of our pre-operation outpost line." This is legitimate and reasonable criticism; but it is not complimentary. Does the writer really believe that we submitted our plan without giving very full consideration to what was the whole crux of any operation against the Mullah, *i.e.*, Surprise. Hardly! Our plan was based on two factors; and in endeavouring to explain their significance I must beg permission to hark back a little way.

It must be remembered that the Protectorate forces had been constantly at war with the Mullah's raiders since 1914; and during that time five major and many minor actions had taken place. In addition all too many abortive pursuits and patrols had penetrated far into enemy country. (I may here mention that these raiders did not operate on the small scale usually associated with such adventures in this country, but were "full dress" shows consisting of all available fighting men, prepared for all eventualities, and numbering anything up to 2,000 rifles.) These operations all took place many miles ahead of our "pre-operation" outposts—even up to and beyond ELAFWEINA—without in the least alarming the Mullah, except, perhaps, on the earlier occasions. Advances beyond the "pre-operation" line had, therefore, no special significance for him; and that is the first point I want to make.

Again, we had proved, without any shadow of doubt, that, contrary to general belief, the dervishes had no regular intelligence, outpost, or scout system. We encountered so many examples of incredible laxity in this respect that we had almost begun to count on it, though after actual touch had been established, their scouting arrangements left nothing to be desired. Perhaps the most notable instances were, our advance from BURAO, our *permanent* headquarters, against the forts at SHIMBER BERRIS, a distance of 70 miles, in 1914, and again in 1915, on both of which occasions we actually captured dervish stock before it could be driven into the forts—a sure sign that we were unexpected. It may be interesting to note that the much wounded Carton de Wiart, then a company officer in the Camel Corps, lost his eye in the first of these operations, and incidentally earned a D. S. O.

Even in the 1920 operations there are frequent examples. The surprise effected by the operations as a whole, in spite of obvious preparations—notably at LASKHORAI, almost within view of the dervish fort at BARAN; complete ignorance of the presence of ground troops until the arrival of the Camel Corps at JIDALI; and again ignorance of their presence at GAOLO, within 9 miles of TALE, on the 8th February, until their dust was seen on the 9th approaching TALE. Can you imagine a similar situation on the N.-W. Frontier?

Group-Captain Chamier goes on to say that "the Air Ministry acted in the light of all available military and political experience of the last 19 years;" but he doesn't give us credit for doing ditto, even though 6 of those years were fraught with close and bitter personal experience. Moreover, the Air Ministry appear to have missed the points I have referred to above! Group-Capt. Chamier's allusion to the "pre-operation" outpost-line, implies ignorance of the bare fact that we had even crossed that line!

I now turn to the writer's suggested result of the advance of the ground troops, *i.e.*—

(a) Material effect	...	...	... Nil.
(b) Moral effect	...	...	... Nil.
(c) Touch with enemy	...	...	... Lost."

I will deal with them seriatim—

(a) I think not, having regard to the two points referred to above.

(b) Emphatically not, for the simple reason, that moral ascendancy already existed.

I have already referred to the continuous operations of the six years previous to 1920, during which a series of heavy defeats had been inflicted on the dervish fighting forces. These had the inevitable result; and in this connection it is interesting to recollect that in 1913 and 1914, after the Corfield disaster, the Mullah was held in superstitious awe to such a degree, that no Somali would mention his name. He was always referred to as "that man."

(c) Here again I think not.

We had semi-trained and worked up an efficient force of illaloes, or tribal scouts,—locally known as "Tallyhoes"—who included in their numbers some of the most finished cut-throats and murderers in existence, not a few of them ex-dervishes.* Their exploits would fill a book, though many of them do not bear repetition. These men occupied the outpost-line and were

* The Mullah invariably executed on suspicion any of his ex-followers who returned to the fold. These men were, therefore, thoroughly reliable, and their knowledge of Dervish country was invaluable.

in constant touch with the dervish; they were unsurpassed as scouts and trackers, and knew every inch of the country. A small detachment always accompanied troops in enemy country; and two notorious ex-dervishes Abdi Dera and Abdi Nur Hadig, acted as guides with the Camel Corps all through the 1920 operations.

Group Captain Chamier goes on to speak of "immense moral effect." The initial moral effect of air action was undoubtedly great, but I doubt if it was ever "immense;" and, in any case, what is the advantage of moral effect if it is not exploited? The fact of the matter is that to a race which, from its inception, has been born and bred in the midst of "frightfulness" and violent death, purely moral effect, as such, cannot make a very deep or lasting impression. I have already referred to the moral factor in my original paper, and will touch on it again later.

Captain Chamier quotes the 1904 campaign to prove that "loss of touch has been the *invariable* result of every military action fought in the Protectorate since 1901;" and I am glad he raised this point because it is closely connected with our objection to the R. A. F. plan of campaign.

Now the culminating fight of the 1904 operations—JIDBALLI—resulted in loss of touch due to the complete dispersion of the dervish forces, as the natural sequence to a heavy defeat. Preliminary conditions were however favourable to successful dispersion in the event of defeat. The Mullah was the attacking party and the element of surprise was, if anything, on his side.

Furthermore, our mounted troops were for the most part improvised and had no special knowledge or aptitude for operations in a country where familiarity with local conditions is a *sine qua non*. The irregulars were local but of little fighting value. The Mullah himself was said to have viewed the fight from a neighbouring hill, but he was able to make a timely escape.

Compare the above situation with that of 1920. We were the attacking party and we had surprise. We had a new factor in the R. A. F., which reduced the risks of surprise, the cause of previous disasters to a minimum, and ensured co-ordination and liaison. We had a suitable instrument to hand—an efficient, experienced and proved regular force, trained, armed, equipped, handled and

mounted in the light of 6 years actual operations and consequent knowledge of the enemy and his ways; surpassing even the dervish himself in mobility; and last, but not by any means least in this peculiarly demoralizing land, possessed of a moral ascendancy over the enemy—a condition which had never existed before.

We were fully aware from our own experience and the experience of the operations referred to, that after defeat the dervishes would disperse to the four winds of heaven, and that, unless we could deal with this dispersion, we could never gain really decisive results, let alone capture the Mullah. "All available military and political experience of the 19 years" showed that at this point previous plans had broken down. We had therefore carefully studied and worked out this problem.

Our plan—attack the dispersion at its source—was at least mathematically correct in principle. For reasons already explained we felt that we could get very close up by zero day; and so be in a position either (a) to prevent dispersal altogether, or (b) to deal with it before it got beyond us.

In considering (a); there was a bare possibility of surrounding the dervishes at MEDISHE before aerial bombardment, but this would have been a dangerous operation, and was not considered practicable. We pinned our faith on the forts—a new factor in dervish warfare, which Group-Capt. Chamier has not taken into consideration.

It seemed logical to assume that the Dervishes at MEDISHE surprised by aerial attack would be unprepared for escape; and in the ensuing panic they—including the Mullah himself—would naturally seek refuge in the forts—exactly what the doctor ordered! (This was what actually happened in the event.) To surround these forts and cut off all chance of escape whilst they were bombarded, breached with guncotton, or assaulted, or a combination of all three, were operations with which we were familiar. All the same, we could not count on so simple a solution; and (b) was the eventuality we had to foresee. We had therefore given considerable study to this aspect of the problem, as I have already indicated; and the eventual organization of the Camel Corps, *i.e.* 2 pony and 3 camel companies, was based on it.

Our theory is not a new one and may be summarized as—

- (i) Preparedness for sustained pursuit at all times, *i.e.* filled up with rations, watered, etc., where possible.
- (ii) Instant and relentless pursuit by the pony companies, who would disperse, if necessary.
- (iii) Support by the three camel companies, to deal with organized resistance.

This theory had worked out well in practice, notably at the action of ENDOW in 1917, when a pony company pursued and held a large raiding party till the "camelry" came up; and again during the present operations in the actions round BIHEN and GEROWEI on the 11th and 12th February, when our pony-men dispersed and rounded up individuals and small parties of the enemy.

We were satisfied, therefore, that mounted troops should be close up to MEDISHE on zero day, as the best and only reasonable method of countering "the invariable result of every military action fought in the Protectorate since 1901."

Picture then our consternation at the Air Ministry plan, which placed the mounted troops, whose rôle was to round up the enemy and capture the Mullah, 70 miles from the point of dispersal!

"Surely in vain is the net spread in the sight of any bird," but equally in vain is it spread in the next county.

When one reflects, that, after the Mullah escaped from SURUD with 48 hours start, the Camel Corps was actually able to head him off; and that again, when he escaped from TALE, the same Camel Corps, though much exhausted, was able to give him 12 hours start, to track him, round up his personal following, and come within an ace of capturing him himself; one is entitled to dwell on what "might have been."

It is reasonable to ask, "Under the most favourable conditions what more could have been achieved?" It isn't a question so much of what was achieved as how unnecessarily near we were to achieving nothing.

How near we were to complete failure, may be judged from the fact that when we came up with the Dervishes on the last occasion, not only had we "shot our bolt" but GERROWEI and BIHEN, besides being on the border of Italian territory, are situated on the edge of the waterless HAUD; so that with the best intention in the world we couldn't have gone another inch.

In 99 cases out of 100 the pursuit would have been a failure. Its success, on the very brink of failure, was based on two factors. A most appalling "fluke," *i.e.* the desertion of a single Dervish who had seen our tracks; and determined leading. Supposing the Dervish had crossed the tracks at night or had not deserted?

Captain Chamier's final contention is a little surprising. He says:—"And the only danger inherent in the air operations was that they would scare him away before we could place forces to intercept him. *This did not in fact occur.*" True up to a point, but with one absolutely fatal reservation, *i.e.* touch was lost. The net result was therefore the same and what we feared actually did occur, *i.e.* the Mul'ah slipped away and it was only by the merest "fluke," already referred to above that the fact was discovered.

Captain Chamier finally quotes despatches. I need scarcely remind him that despatches do not always get to the heart of things (I will give him a concrete example, if he so desires); and the Commander-in-Chief he refers to, as I have already pointed out, was a civilian with no military experience or knowledge whatsoever. Also remember the very old adage about a "new broom." This is peculiarly apropos.

As I have already indicated the demoralization of the first air attacks soon waned. At JIDALI we stood by and saw the bombardment of the fort—a wonderful spectacle—but when we advanced to the attack, the occupants, a mere handful, showed no signs of demoralization, and held out till nightfall; although Stokes mortar shells had gone through the top storey of the fort and burst in the interior, rendering it quite untenable.

A comparison has been drawn between the comparatively quick capture of this fort, and the stiff resistance put up at BARAN, which had not been previously bombarded from the air,

The explanation is simple. The BARAN fort was strongly roofed and Stokes mortars had therefore no effect on it whatsoever; whereas at JIDALI there was no roof but only an upper storey of mud and rough wooden spars.

Another point I did not bring out before is this. The Mullah with his family and immediate following entered Tale *after* it had been heavily bombarded and also withstood a bombardment with equanimity! This is hardly consistent with "Tremendous moral effect."

Apropos of the allusion to Gibb—the most gallant of men, since murdered by the people to whom he had devoted his life and whom he led in these operations—the rushing of TALE fort was not quite so rapid as would appear from the reference. The convoy was captured on the 5th February but TALE was only taken on the 9th—unfortunately after the bird had flown.

The friendlies in this campaign were a constant thorn in our side. Their only objective was loot, and most of their time was spent in squabbling over it. On one occasion we turned out to the sound of firing to find a battle royal going on between rival tribesmen! Only the bravest of men would have taken on their leadership.

With regard to liaison; I have the warmest recollections of the most cordial relations between the R. A. F. and the ground troops, and I should be extremely sorry to give the impression that anything was lacking in this respect. I sincerely hope I have not done so, and I can only say that nothing was farther from my thoughts.

I am all in favour of "praise for allied services," and I yield to no one in my admiration of the achievements, hardships and appalling risks taken by the R. A. F. here, as elsewhere.

Yet I submit again that the claims put forward and constantly reiterated by so distinguished an authority as Sir John Salmond, amongst others; and which I have since seen in an official document, were not borne out in the actual event. I repeat this statement on the general grounds that false deductions lead to false policies; and false policies are dangerous in view of situations elsewhere not dissimilar to that which existed in SOMALILAND.

Finally I wish to touch on one other point, which is prominent amongst R. A. F. claims, *i.e.* the rapidity with which these operations were brought to a conclusion. The Air authorities submit that the Mullah, who had defied us for 20 years, was broken in three weeks, as a result of aerial bombardment! My contention is that it took six years to break the Mullah, and who can say that he was really broken then! Death claimed this amazing man, described by Sir Reginald Wingate as "a much bigger thing than the Mahdi ever was," so we shall never know. We do know, however, that, up to the moment of his death, he never relaxed his efforts to regain his strength, and to build up a new following on the ashes of the old—not altogether without success.

During the six years prior to 1920, the five major actions I have already referred to—not to mention Corfields fight in 1913—dealt very severely with the Dervish, in the sense that very heavy casualties were usually inflicted; heavier than was usual in such actions—with the possible exception of JIDBALLI—mainly due to the reliability and deadliness of modern automatic weapons; and in addition the ceaseless "nagging" of the illaloes had a very marked effect.

Had we been permitted to follow up our success the situation could have been ended at any time, certainly from 1919 onwards, with very little outside assistance. The home authorities, very rightly, would not accord this permission in view of weightier matters elsewhere, but, none the less, the Dervish power was broken before 1920; and the rapid success of the operations under dispute was merely the natural outcome of previous "preparation"—the culmination of "the work of years;" six to be precise.

CORRESPONDENCE.

DEAR SIR,

In my original article "Age and Efficiency," I invited controversy, and I have read with great interest the letter signed "T.F." in your last issue.

The comparative value of Age and Youth from a military point of view must of necessity remain a matter of opinion. It is a physiological problem, and like all such, is incapable of a definite solution.

I can hardly hope to convince "T.F." that my solution is correct, as he evidently holds strong views of a contrary nature, but I venture to claim the hospitality of your pages in order to show that some of his arguments are not conclusive.

1. "T.F." writes, "This suggestion that because prolonged trench warfare in Europe demanded activity and "guts" in the leaders of Divisions and lower formations, therefore the age of commanders must be reduced." Personally I should say that "activity and guts" were necessary qualifications for a successful commander in any type of warfare and in any theatre of war. The pages of military history of all ages are strewn with disasters caused by the lack of them.

2. "T.F." argues that, because the present age limits existed when the Expeditionary Force of 1914 was formed, and because the latter proved a highly efficient force, therefore there can be nothing much wrong with them. But it must be remembered that the commanders (above battalions) and staffs were all men specially selected for their talents and driving power and were in many cases young in comparison with the rank they held. For example, Earl Haig and Lieut.-General Gough were exceptionally young for the positions they held in 1914.

It was the New Army Divisions who suffered in early years of the war from senior commanders and staffs who, although well within the age limits, were in many cases obviously too old for

their jobs. It is undesirable to mention names, but the campaigns in France, Gallipoli and Egypt in 1915 and 1916 offer many examples of reverses directly attributable to lack of mental and bodily activity in elderly Brigade and Divisional Commanders. It is no new lesson. Military history teaches it again and again throughout the ages, but, during periods of peace it is always forgotten.

3. "T. F." appears to accept as a dogma that elderly men are the best to train, administer and organise an Army in peace. This is open to argument. It cannot be disputed, moreover, that the great majority of those officers who by brilliant achievements during the late war obtained rapid substantive promotion and reached high positions at an age a long way below that usually associated with their rank, have proved themselves as valuable in these positions in peace as they did in war.

The average age for Divisional and Brigade Commanders is at present considerably below that of pre-war years, but there can be no question that the standard of efficiency is as high, if not considerably higher.

4. "T. F." writes approvingly of the "gradual substitution of young" for "old men" on the outbreak of war. This is a dangerous and expensive process in some cases as the last war proved. It is difficult, if not impossible, to turn away, at the outbreak of war, the Commanders who have trained their formations in peace. Therefore, these commanders are almost invariably given their chance. The results, after a long period of peace are sometimes unfortunate.

I remain, Sir,

Yours faithfully,

A. B. BEUMAN,

Lieut.-Colonel.

REVIEWS.

"The European States System." By R. B. MOWAT. (Oxford University Press).

A small work which traces the development of the European States System from the end of the 30 Years War (1648) until the Treaty of Versailles.

The author's main argument is contained in the phrase "Mankind will not tolerate an Empire of the World, no more than Europe will tolerate an Empire of Europe." He brings out, very clearly, evidence that history has proved this, and concludes with a view that the League of Nations is the logical outcome of this phrase.

The European states system is now complete excepting that Russia is outside it. Further than that, the system is now world wide, with its centre in Europe.

The author presents his arguments clearly and with conviction. The book, however, is so small in its size, that one is rather left with the impression of an over-crowding of facts into too small a compass.

"Tales of Turkey." By MAJOR E. W. C. SANDES, D.S.O., M.C., R.E. (Pub. John Murray, 5s. net).

As the author states in his preface, this book is an attempt to describe the strange people of a strange land, as seen by a prisoner of war.

In the first pages of the book one sees that the author's experiences have led him to the opinion that the Anatolian peasant is a pleasant, kindly individual. Incidents relating to many of the types of the classes that formed the Turkish Empire are told in cheerful language. But, after reading the book, one is forced to the conclusion that, except for the villager of Anatolia, little that is good can be said of the Turkish official generally.

The book gives a brief and interesting account of life as lived by a prisoner of war. The author is essentially fair in the judgments he passes on his "hosts."

"The Common Weal." By the Right Hon'ble HERBERT FISHER, M.P. (Oxford University Press, 7/6 net.)

This collection of Stevenson Foundation lectures are admittedly no attempt at a systematic contribution to political philosophy.

The author has, however, given us a free and most readable appreciation of some of those topics and problems which appear to him to be of special interest and importance. The clarity of the author's style, and the logical manner in which he brings forward each argument makes this book both convincing and entertaining.

The opening chapters centre round the quotation "In spite of all the efforts of a philosophic age, the most civilised Empires will always be as near to barbarism as the most polished steel is to rust."

The author most convincingly proves the truth of this, and then searches for remedies. Starting with the individual he examines the various calls made upon him in his social relationships. The claim of the state, the claim of the class, the claim of personality and the claim of patriotism are all carefully examined.

There is an illuminating chapter on the conscientious objector, in which all the arguments, both for and against, are equitably and clearly brought out.

A further interesting theme with which the author deals is that of the intelligence of the masses. His logical and well-weighed condemnation of those who would frame a policy upon untried and unproven assumptions is among the best matter in this book.

The latter part deals with International Relations, and Sir Herbert Fisher gives his solution to the International dissensions which are now universal.

His chief argument is that, for world peace to be possible, an international habit of mind must be universally acquired.

Following from this, the only safeguard lies in the courage of the rulers of the people. If sacrifices can be made in national pride and aspirations, for the sake of general peace, if all nations

work steadily for the furtherance of human solidarity, then the future of mankind is indeed bright.

Sir Herbert Fisher writes as an enthusiastic supporter of the League of Nations. In the League, and in the reduction of armaments, he sees the first practical step which can be taken towards the millenium. His arguments for the reduction of armaments are brought forward with a clear appreciation of the difficulties and dangers which surround this reduction.

A book which gives much food for thought.

"Main Features of the Japanese and other Pacific Problems." By "WATCH DOG." (Published by Sifton Press and Co., London, 1924. Price 9d.)

A useful little pamphlet portraying in moderate terms the changes in the situation in the Pacific and in the Far East consequent on the war and on the Washington Conference.

Published originally in the *Morning Post* in 1923, the articles do not take into account the effects of the great earthquake in Japan; the decision to postpone the development of the Singapore base; the recent immigration laws passed by America; or the recognition of Soviet Russia by China.

These are all factors which must materially affect the situation as depicted, and which should be given their respective values in reading these articles.

"Watch the Pacific." By E. GEORGE MARKS. (Published by Cole's Book Arcade, 333A, George St., Sydney, Australia.)

A forceful book written in forceful language depicting, in no unmeasured terms, the weakness of Australia as compared with Japan in the Pacific, and emphasising her inability to guarantee the accepted policy of a "White Australia" owing to the lack of the requisite armed forces.

The author severely criticises the decisions of the Versailles Council and of the Washington Conference, and contends that, as a result of these decisions, Japan has secured for herself an impregnable position in the Pacific and has practically acquired a dominating influence in the Far East. He brings out clearly the vital importance of Singapore as a base, and regards the

original decision to develop Singapore as a hint and a timely warning to Australia by the mother country as to the impending danger.

In effect the book may be described as a call to arms to Australians to prepare the defence of their country against a potential Asiatic menace.

The moral to be drawn is that, if and when a nation decides to adopt a certain line of policy, the nationals must be prepared to make sufficient sacrifices to maintain the forces requisite to ensure that policy being carried out.

The value of the book is greatly reduced by the lack of maps.

"A Record of the Battles and Engagements of the British Armies in France and Flanders, 1914—1918." By Captain E. A. JAMES, 48th (South Midland) Divisional Signal T.A. Foreword by Lt.-General Sir Hugh S. Jeudwine, K.C.B., K.B.E., Director-General of the Territorial Army.

This record is a list of all the formations, down to Brigades, which participated in the battles and engagements fought by the British Armies in France and Flanders in 1914 to 1918. The dates of each battle and engagement are given and also any tactical incidents which occurred. The French, American and Portuguese formations and any temporary formations, such as Carey's Force, are mentioned under the actions in which they co-operated.

As an instance of the many interesting items in this small book, the author informs us that the Indian Corps was first in action at the battle of LA BASSEE—10th October—2nd November 1914. That the battle of FLERS-COURCELETTE, 15th—22nd September 1916 was the first occasion on which tanks went into action and was the first day on which British Artillery fired a creeping or, as it was then called, rolling barrage. Also that American troops made their first appearance in action with the British Army at the capture of Hamel, 4th July 1918.

The indices of Place names and formations at the end of the book are useful. This record should be of value as a concise book of reference.

"Indian Problems in Religion, Education, Politics." By the Right Reverend HENRY WHITEHEAD, D.D. (Constable, 12s. net.)

Bishop Whitehead came to India in 1883 to be Principal of Bishop's College, Calcutta. From 1890 to 1899 he was Superior of the Oxford University Mission to Calcutta, and then as Bishop of Madras he spent the rest of his time in India in the south, retiring in December 1922.

After forty years' service in India, Dr. Whitehead has written a book for English readers, who know comparatively little about Indian affairs, but to many of those also who have been some years in India, this book, written boldly, clearly and tersely, will be of value as a general survey of the problems which have to be solved at the present day.

The book is divided into four parts, namely, (1) The Conflict of Religions, (2) The Christian Church in India, (3) Education and (4) Politics. The book is, however, not concerned with four separate subjects, because Dr. Whitehead rightly regards present-day problems as the result of forces which have their history from the earliest times. As a result we have in this book, not only the political opinions, but also the historical judgment of a man of long experience in this land. The book is a comprehensive one in more than one way, and is of special interest to students of Indian affairs, and of great value to beginners.

There are in Dr. Whitehead's volume several outstanding features. Foremost is his advocacy of the use of the vernaculars in the education of Indians. After an account of education in India before Lord Macaulay's famous minute of 1835, a detailed indictment is made of the results of the use of English as the medium of education. The advantage of its unifying effect is not disregarded, but the loss of interest in religion, on which pre-Macaulay education was founded, is lamented. The Bishop seems to link up the deterioration of religion, the poverty of education, and feverish type of Indian politics of the present day, as all of them arising to a large extent from Macaulay's initial mistake. Three points are made if education is to serve religion and to engender a healthy political future, that education in India must be moral, a training of character, that it must be given in the

various vernaculars; and that it must depend to an increasing extent on the interest and support of the people rather than on the Government.

A book of this kind is very welcome in that it is frankly and fearlessly controversial and suggests, if not a solution of present difficulties, at least the lines on which a solution must be worked out.

"Citizenship." By W. H. HADOW, Vice-Chancellor of Sheffield University. (Clarendon Press, Oxford.)

The spectacle of a Christian world at war gave mankind furiously to think; and, though in those glorious six months which succeeded the cessation of hostilities, men dared hope that in the new age then apparently dawning one's duty to one's neighbour would be so defined and so practical that many of the problems which had been racking our consciences would disappear, yet very rapidly has the world lapsed into the old rivalries and the old competition, and we find ourselves faced with the old riddle, not only unsolved, but far more complicated and more difficult than ever before. War is to-day a possibility as real as it was in 1913. It has but become more horrible. So long as the fighting was left to professional armies, the champions of the nations they represented, so long was it possible to leave to philosophers the development of the theme of citizenship. The right ordering of his loyalties to himself, his family, his state, and humanity might occupy the attention of the religious man, it had no necessary part in the busy life of the man of affairs. But now that war involves a nation in arms, no individual can escape an examination of his duty to fight or forbear, and from such examination must follow a deeper appreciation of the duties and privileges of the citizen in peace. A new war would bring to the light a growth of conscientious objection on the one hand, and a more reasoned patriotism on the other.

Dr. Hadow's book on "Citizenship" has, therefore, appeared most opportunely. As is to be expected from an author of his reputation, the lectures which compose the 222 short pages of this volume are at once erudite in matter and simple in expression. Contributions are levied from writers and thinkers of all nations

and all ages, but the argument is presented with such scholarship and lucidity that of its kind the book is easy and interesting reading. To the student it offers a compendium of the world's literature on the subject: the more casual reader will find ample food for reflection and much close reasoning on topics that cannot fail to appeal to him—"The State as a means"—'Education in Citizenship.'

Nevertheless the concluding lecture 'de cuitate dei' leaves us, as do so many modern philosophical works, not all content that the theme has been successfully worked out. The theme itself is stated with characteristic clarity. The State does not exist merely for the individual, or the individual merely for the State. "Man and community are powers appointed to carry on processes which pass beyond their limitations and converge upon an end which is greater than their own." But the application of the principle to individual difficulties, though definite enough, is not convincing—and here the author borrows from his former master Sir Henry Jones:—"The State may summon its citizens to a just war and no other. And if it be asked who is it to determine the justice, whether State or individual—the answer is both, if possible. If that is impossible, the individual should try to persuade the State, and if he fails should be contented to obey orders. Opinions in manifest contradiction to social usage are generally wrong and wrong opinions have no right except the right to be refuted."

The argument is not one that will appeal to all people at all times. But such books as this achieve most when they are provocative of thought: and in this Dr. Hadow is eminently successful. As he reminds us, a long road still remains to us before we have crossed the desert: and his book is an excellent equipment for the journey.

"The Fighting Forces, Vol. I, No. 3, September 1924." (Gale & Polden, Limited, 5s.)

This number fully maintains the standard of its predecessors. it opens with a succinct and outspoken commentary on the causes of "Unrest" in India by Lord Amptill, which is very opportune. For in following the vagaries of the various political factors of the moment there is a tendency to lose sight of fundamentals, which it

is very necessary to recapitulate from time to time in order to preserve the perspective of the problem. Other articles of professional interest include *The New Europe*, by Lieutenant-General F.H. Tyrrell; *A Dream Army*, by Lieutenant-Colonel A. G. Baird Smith, D.S.O., and *Post-War Doctrines of the Great Powers*, by Captain Liddell Hart.

The lighter vein is represented by *Maxims Moral and Immoral*, by F.J. Hudleston, C.B.E., *A Corsican Leave*, by Major C. T. Tomes, D.S.O., M.C., and an interesting article on *Wireless Installation* is contributed by J. Brittain.

The excellent illustrations add to the attractiveness of the publication.

"Britain B. C. 55, A.D. 1914." By R. B. MOWAT. (Oxford University Press, 1923, Rs. 8.)

This book is intended primarily as a text-book, and in presenting it the author anticipates the question as to why another history of this period should be necessary, in the following words:—
 "With the changing conditions of modern life the emphasis of teaching must be modified.....the orientation of people's minds is not quite the same as it was. Constitutional affairs still bulk largely, as do also military affairs; but in addition a deeper knowledge of economics and social history, a closer touch with imperial development and a more detailed acquaintance with foreign policy are now necessary for every boy or young man who wishes to understand the trend of English life to-day and to take his part in it."

We thoroughly endorse this view, and by dealing with the subject on these lines the author has provided a book which not only fully meets the particular purpose expressed, but which should prove of considerable value to the military student, by assisting him to appreciate more clearly the connection between past history and present conditions.

"The Autobiography of General Sir O'Moore Creagh, V.C., G.C.B." (Hutchinson, London, 24s.)

Apart from a brief reference to the author's childhood the period covered in this autobiography is from 1866 when he joined the Army as an ensign in the 95th Foot, to 1914 when he relinquished the appointment of Commander-in-Chief in India.

We are given an interesting sketch of service in India as it was when he joined, and a very considerable portion of the book is devoted to his service in Rajputana, which is dealt with in detail. The author's later service included periods at Aden, and in China with the Field Force of 1900, both of which afford interesting side lights. In view of the fact that Sir O'Moore Creagh was Commander-in-Chief during the period just prior to the Great War, it is unfortunate that the difficulties with which he was apparently confronted in endeavouring to provide the army with its requirements for efficiency, and the causes of his inability to overcome them, are not referred to in greater detail. For the problem is one which is not confined to that period, but must constantly recur.

"The British Empire Series." (Messrs. W. Collins & Sons & Company, Limited, 16s. per volume.)

Volume I. The Dominions and Dependencies of the Empire.

Volume IV. The Resources of the Empire.

Until the present series was produced no volume or series of volumes existed giving a complete survey of the Empire as a whole. The occasion selected for this survey seems a particularly favourable one, for the Empire has just emerged victorious from the greatest war of all times, the Dominions have leaped forward into full and equal partnership with the mother country, while, at the time of issue, public interest in Imperial affairs was about to be stimulated by the opening of the Empire Exhibition.

A survey of this nature is an immense undertaking. Only by a perusal of one of these volumes can a full idea of the magnitude of the task be obtained. It is not too much to say however that the first volume is worthy of the subject, and higher praise than this it is hard to imagine. Surely no compilation has ever been produced where each author is so completely equipped to speak authoritatively on the particular subject allotted to him, and so well able to express his views. The book is arranged as well as it is written and every article is logical, concise and informative.

It is, as may well be imagined, no book to sit down and read through from cover to cover. The array of facts historical, political and economical is too tremendous to be devoured at a single meal. We recommend therefore a gentle assimilation, one

course at a time, otherwise mental indigestion is almost certain to ensue. One must not forget too that we are dealing to a certain extent with propaganda—each author is trying to make the best of his subject, and there is, therefore, a tendency to gloss over doubts and difficulties.

This holds good more especially with regard to Lord Meston's article on India. Here we have a delightful piece of writing, easy to read, erudite, and showing great insight into the problems discussed, and yet, in dealing with modern India, utterly failing to convince. We meet in fact the failure so common on the part of those who write, speak and even legislate on Indian affairs—a failure of courage, a failure to look facts squarely in the face, to unearth the real difficulties, and, keeping these firmly in mind, to formulate a courageous answer.

As we see them the basic problems to be faced in dealing with the future of India are these—

Firstly, can a great nation, brought up like a hot house plant, protected from frost and wind, and tended by careful gardeners, be suddenly thrust force to face the struggle for existence amidst the hardy weeds which surround it?

Secondly, can a ruling class which has never experienced the vicissitudes of war or the struggle for national existence be expected to control a conglomeration of races comprising thousands of fighting men, and lead them against a hardy and savage enemy?

Thirdly, can centuries of religious animosity and hatred be brushed away in a few years by mutual discussion and the discovery of "working formulæ" by a few educated leaders?

Fourthly, is it possible or has it ever been possible to found a genuine national government by the people, when eighty per cent. of the people take no interest in the matter whatever, especially in an oriental country where, so far, no popular government has yet succeeded in functioning?

Only when questions such as these have been propounded and answered can a work on the future of India really carry conviction.

To the chapter on Sea Power and the Outposts of Empire the service reader will at once turn with avidity. But here he will meet with a great disappointment. Apart from descriptions

and facts concerning the places described he will find little but a stringing together of platitudes. No attempt is made to discuss on broad lines the principles implied by command of the sea, nor is any interesting effort made to discuss the strategical problems which command of the sea embraces.

Apart from these defects however the book can be most highly recommended to all students of the history, resources and political tendencies of the Empire. It is, however, a pity that no good maps or indices are provided.

With regard to volume IV we are compelled to write in a very different tone. Here again the task to be faced has been tremendous—unfortunately far beyond the literary capacity of the writer to whom the compilation has been entrusted. The best which can be said is that the arrangement is on the whole good and the amount of information contained is immense. Unfortunately the latter is only too often impossible to discover, concealed as it is in a maze of interminable sentences. The information is however there for those who have the leisure and the patience to extract it.

To the layman one great defect appears. The resources of the Empire are set forth in full, but we find little about possible markets. Surely the first essential in increasing output is the discovery of possible demands. To know how many tons of tea a country already imports is not sufficient. The merchant wants to know the maximum possible consumption. He is then in a position to decide whether it is worth while taking steps to popularize his goods.

To students we recommend the chapter on railways. This is of great interest. Other interesting problems are the question of the Empire's oil supply, and, in view of the future exhaustion of coal in the United Kingdom, the possibility of the more general adoption of the energy produced by water power.

In a book of this class the reader is entitled to demand a correct use of the King's English and careful proof reading. The volume fails in this respect, and there are many irritating mistakes.

"Outline History of the Russo-Japanese War, 1904, up to the Battle of LIAO-YANG with Questions and Answers, by P. W. (Sefton Præd and Co. 4s. 6d.)

The truth of the saying that "Reading provides the mind only with materials of knowledge: it is thinking makes what we read ours" will be brought forcibly home to those who study P. W's. *"Outline History of the Russo-Japanese War."*

The author gives the briefest possible account of the Campaign so brief as to give one the idea that the book is written as a kind of "express letter," but he never fails to bring out the salient points of the various operations and actions, points which undoubtedly are worthy of close and further study.

A little more space could perhaps have been devoted usefully to a fuller description of the difficulties of transportation experienced by the Russians over their long L. of C. to Europe. The hopeless congestion of rolling stock which occurred on this L. of C. can be traced to the violation of many of the leading principles laid down in our *Manual of Movement (War)*.

To have equipped the book with good maps, showing clearly the places one requires for a study of the campaign and no others—is, to my mind, an attractive achievement; as the somewhat fantastic and wholly elusive geographical names with which Manchuria abounds, have hitherto proved to be my chief stumbling block to serious study of this campaign.

To the student of military history the book is of great interest, not only because the author has been able to combine extreme brevity with an attractive style of writing, but also on account of the very instructive questions and answers which he has compiled on the campaign in general.

I can imagine no more useful book to the student who has to study this campaign for examination purposes.

"With Allenby's Crusaders." By CAPTAIN JOHN MORE, 1st 6th R.W.F. (E.E.F.) (Heath Cranton, Limited, Rs. 7-14.)

The volume is accurately described by the author in his foreword. "This book is not intended for an 'official' record of any one particular unit, nor an account of the experience of any one

particular individual.....Thousands of officers and men in the E.E.F. went through a similar mode of existence and similar experiences to those I have portrayed, so to them nothing which these pages contain will appear as a novelty, but merely as reminiscence of the Palestine Campaign."

The account given is the experience of an officer who served first with his battalion and later on the staff. It is well and simply written, contains pleasant and accurate descriptions of places in the Holy Land, and many references to the officers with whom the author associated. While the "human touch" cannot fail to interest, and as such adds charm to a very readable narrative, the author has in no way attempted to produce a work which will be of use to the serious student of this Campaign.

"George III and the American Revolution." By F. A. MUMBY,
F.R.H.S. (Constable & Co., Ltd., London, 21s.)

Until very recent years it has been the almost invariable habit, not only of American writers of popular histories, but also of American historians, to produce very biased and therefore inaccurate versions of the events which led up to the American Revolution and the separation of that country from the mother land. As a result of the Great War and mutual sacrifices, a general need was felt for a new history of this period. American historians have taken up the task, but the new histories they have produced are written by historians for historians and not for the layman.

In England, numerous writers have told the story of the American Revolution in a thoroughly unbiassed manner. Mr. Mumby has returned to the charge and tells us in his preface that the object of the book under review is an attempt to illustrate the character and times of George III and the early years of his reign, and to re-tell the story of the American Revolution throughout its first stages. This he has succeeded in doing by collecting a mass of correspondence from and to notables of the period, belonging to all shades of political opinion and to both sides of the Atlantic; arranging it chronologically and linking up the letters by short notes. Family and informal correspondence, unlike Parliamentary speeches and official notes and minutes, show the real feelings of the writer and the trend of political feeling in the various parties. As a result

Mr. Mumby has been able to give us an unbiassed account written by the actual men responsible for the political developments both in England and America. From these original documents one is left to draw one's own conclusions and appropriate praise or blame according to direct evidence. The book should prove of value not only to the historian but to everyone interested in the birth of the American nation, irrespective of whether he may be a citizen of the U. S. A. or a member of the British Empire.

The JOURNAL of the UNITED SERVICE INSTITUTION of INDIA

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United Service Institution of India.

RULES OF MEMBERSHIP.

ALL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Auxiliary Force, India, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign, naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—

Rupees 120 + entrance fee (Rs. 10) = Rs. 130.

Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 10, to be paid in advance. The period of subscription commences on 1st January.

Subscribing members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

Life members receive the Journal of the Institution post free anywhere, but ordinary members only in India. All members may obtain books from the library on paying V.-P. postage.

Honorary Members shall be entitled to attend the lectures and debates, and to use the premises and Library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 10, in advance, will be required.

Divisional, Brigade and Officers' Libraries, Regimental Messes, Clubs, and other subscribers for the Journal, shall pay Rs. 10 per annum.

Sergeants' Messes and Regimental Libraries, Reading and Recreation Rooms shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 10.

If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and not been returned by the post.

Members or Subscribers to the Journal, intimating a wish to have their Journals posted to any address out of India, shall pay in advance Rupee 1 per annum, to cover foreign postage charges, but Life Members who have left India shall not be liable for foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A. R. L. Vol. II, para. 204, and King's Regulations, para. 509.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published. Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

United Service Institution of India.

APRIL, 1925.

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I.—New Members.

The following new members joined the Institution from 4th December 1924 to 4th March 1925.

Ordinary Members.

Captain E. G. H. Green.
 Captain R. C. M. Shelton.
 Flight Lieut. S. B. Harris.
 Captain C. J. D. Tomkins.
 Lieut. R. A. C. Radcliffe.
 Captain G. D. Taylor.
 Captain A. F. Harding.
 Captain V. T. Smith.
 Lieut. W. D. Robertson.
 Captain R. B. E. Upton.
 Captain J. Campbell.
 Lieut. P. A. Brooke.
 Captain R. C. Smithard.
 Captain A. H. J. Snelling.
 Captain L. H. Tinney.
 Lieut. T. W. Farrell.
 Captain C. P. Warren.
 Captain C. L. Rougier.
 Captain H. E. Roome.
 Captain W. G. A. Coldwell.
 Lieut. H. Essame.
 Lieut. L. T. Firbank.
 Revd. H. F. F. Williams.
 Lieut. R. J. Appleby.
 Col. E. F. St. John.
 Lieut. C. J. Shaw-Mackenzie.

Captain R. B. Roper.
 Lieut. J. F. Newton.
 Lieut. F. E. W. Simpson.
 Lieut. G. M. B. Burt.
 Captain G. E. Roberts.
 Captain F. S. Lanigan-O'Keeffe.
 Lieut. F. Walton.
 Lieut. D. E. Murray.
 Captain H. R. Power.
 Captain E. Ross-Magenty.
 Major H. L. Ovens.
 Captain W. A. M. Stawell.
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 Captain J. A. Finlay.
 Flight Lieut. R. L. Stevenson.
 Major W. H. Roberts.
 Col. E. D. Giles.
 Captain F. A. Morris.
 Captain R. H. Culley.
 Major E. H. Rigg.
 Lieut. B. S. Thapa.

II.—Examinations.

Books on military history and languages with dictionaries are available in the Library. The following list of books may be found useful for reference by officers studying for Promotion Examinations or entrance to the Staff College.

The lists of books presented and purchased as shown in the current year's Journals should also be consulted.

The special periods of military history for future Promotion Examinations are as follows (*vide* I. A. O. 409 and 493 of 1924 and I. A. O. No. 172 of 1925):—

1	2	3	4	5
Serial No.	Date of examination.	Campaign set for the first time.	Campaign set for the second time.	Campaign set for the last time.
1	April, 1925 ...	The Russo-Japanese War, 1904, to the Battle of Liao-Yang inclusive.	...	Campaign in Gallipoli (as given in Serial 3, column 3 of Army Order II of 1922).
2	October, 1925	Operations in Waziristan, 1919-20.	Russo-Japanese War— (a) <i>General Period</i> .—1st May 1904 (Yalu), to 5th Sept., 1904. (b) <i>Special Period</i> .—Battle of Liao-Yang, 23rd Aug. to 5th Sept. 1904.	
3	April, 1926 ...	...	Waziristan (as given in Serial 2, column 3).	Russo-Japanese War (as given in Serial 2, column 4).
4	October, 1926	Campaign of the British Army in 1914 in France and Belgium from the outbreak of hostilities up to and including the operations on 9th Sept., 1914.	...	Waziristan (as given in Serial 2, column 3).

MILITARY HISTORY.

1. *The Campaign of the British Army in France and Belgium up to 20th November, 1914.*

A.—OFFICIAL HISTORY OF THE WAR.

Military Operations, France and Belgium, Vol. I (to October 1914.)

Ditto

ditto

Vol. II (to 20th November.

1914) (in Press).

Sir John French's Despatches.

B.—OTHER BOOKS.

40 days in 1914 (General Maurice, new edition).

1914 (Viscount French).

My War Memories (Ludendorff).

General Headquarters 1914—16 and its Critical Decisions
(Falkenhayn).

The March on Paris, 1914 (Von Kluck).

Ypres, 1914. (An official account) (German General Staff).

Oxford Pamphlets, August 1914. The Coming of the War.
(Spencer Wilkinson).

Oxford Pamphlets, August 1914, Nos. VII and X.

Times Documentary History of the War, Vol. V, Military,
Part I.

Times Documentary History of the War, Vol. VIII, Part III.

Der Grobe Krieg: Die Schlacht bei Mons (German General
Staff).

Der Grobe Krieg: Die Schlacht bei Longwy (German General
Staff).

Story of the Fourth Army (Montgomery).

2. The Palestine Campaign.

A.—OFFICIAL ACCOUNTS.—

A Brief Record of the Advance of the Egyptian Expeditionary
Force, 1919.

The Australian Imperial Force in Sinai and Palestine (H. S.
Gullett).

The New Zealanders in Sinai and Palestine (Lt.-Col. C. G.
Powles).

Yilderim (Dr. Steuber).

B.—OTHER BOOKS.

Allenby's Final Triumph (W. T. Massey).

, How Jerusalem was Won (W. T. Massey).

Outline of the Egyptian and Palestine Campaigns, 1914—18
(Bowman-Manifold).

L'Attaque du Canal de Suez (Douin).

3. The Gallipoli Campaign.

Official Account: Official History of the War, Naval Operations,
Vols. II and III.

Gallipoli Campaign (Outline of Military Operations). By A
Student.

Secretary's Notes.

Official Despatches.

The Dardanelles (Callwell).

Experiences of a Dugout (Callwell).

Despatches from the Dardanelles (Ian Hamilton).

The Navy in the Dardanelles Campaign (Wemyss).

The World Crisis (Winston Churchill).

4. *The Russo-Japanese War, 1904, up to and including the battle of LIAO-YANG.*

A Staff Officer's Scrapbook (Ian Hamilton).

German Official Account.

Lectures on the Strategy of the Russo-Japanese War (Bird).

Question on the Russo-Japanese War (Brunker).

Official Account: The Russo-Japanese War (Naval and Military), 3 Vols., published by Committee of Imperial Defence.

Outline of the Russo-Japanese War (Ross).

A Study of the Russo-Japanese War (Chasseur).

My Experiences at Nan Shan and Port Arthur (Tretyakow).

Outline History of the Russo-Japanese War, 1904, up to the Battle of Liao-Yang, with Questions and Answers (P. W.)

5. *Organization of Army since 1868.*

A.—ORGANIZATION OF ARMY SINCE 1868.

History of British Army, by Fortescue. Vols. I to XI.

Outline of the Development of British Army, by Maj.-Genl. Sir W. H. Anderson.

Our Fighting Services, by Sir Evelyn Wood.

B.—FORCES OF THE EMPIRE.

The Statesman's Year Book.

Army List.

Articles in Newspapers and Magazines, viz., R. U. S. I.

Army Quarterly, Journal of the U. S. I. of India, etc.

6. *Development and Constitution of the British Empire*

A.—THE BRITISH EMPIRE.

Encyclopædia Britannica—(contains much concentrated information).

The Statesman's Year Book.

Whitaker's Almanack.

The Colonial Office List.

The Government of the British Empire (Jenks, 1923).

The Foundation and Growth of the British Empire (J. A. Williamson, 1918).

The Beginnings of English Overseas Enterprise (Sir C. P. Lucas, 1917).

The British Empire Series. (XII volumes).

The Government of England (L. A. Lowell, 1912).

The Expansion of the British Empire (W. H. Woodward, 1921 and 1924 edition).

Overseas Britain (E. F. Knight, 1907).

The Origin and Growth of the English Colonies and of Their System of Government (H. E. Egerton, 1903).

A Short History of Politics (Jenks, 1900).

The English Constitution (Bagehot, 1909).

The Expansion of England (Sir J. Seely, 1883).

Introduction of the Study of the Law of the Constitution (A. V. Dicey, 1908).

England in the Seven Years' War (Sir J. Corbett, 1907).

Selected Speeches and Documents on British Colonial Policy, 2 Vols. (A. B. Keith, 1918).

B.—BOOKS ON SPECIAL PORTIONS OF THE EMPIRE OR WORLD.

The Rise and Expansion of British Dominions in India (Sir A. C. Lyall, 1894).

A Brief History of the Indian Peoples (Sir W. H. Hunter, 1907).

The Nearer East (Hogarth, 1902).

Modern Egypt (Cromer, 1908).

Egypt and the Army (Elgood, 1924).

The History of Canada (W. L. Grant).

Nova Scotia (B. Wilson, 1911).

Report on British North America (Sir C. P. Lucas).

The Union of South Africa (R. H. Brand, 1909).

Short History of Australia (E. Scott).

History of the Australasian Colonies (Jenks, 1912).

The English in the West Indies (J. A. Froude, 1888).

The Lost Possessions of England (W. F. Lord, 1896).

7. Military Geography.

Naval and Military Geography of the British Empire (Dr. Vaughan Cornish, 1916).

Elementary Imperial Military Geography (Capt. D. H. Cole, 1924).

Introduction of Military Geography (Col. E. S. May).

Imperial Defence (Col. E. S. May).

Main Feature of the Japanese and other Pacific Problems.
(Reprinted from "Morning Post." Sifton Press.)

• Britain and the British Seas (H. J. Makinder, 1907).

Military Geography (Macguire).

Imperial Strategy (Repington).

War and the Empire (H. Foster).

Historical Geography of British Colonies (Dominions), 7 Vols.
(Sir C. P. Lucas, 1906—17)—

Vol. 1, Mediterranean.

Vol. 2, West Indies.

Vol. 3, West Africa.

Vol. 4, South Africa.

Vol. 5, Canada.

Vol. 6, Australia.

Vol. 7, India.

The Influence of Sea Power on History (A. T. Mahan, 1890).

Historical Geography of the British Empire (Hereford George).

The Mastery of the Pacific (A. R. Colquhoun, 1902).

Frontiers (C. B. Fawcett, 1918).

III.—Payment for Articles in the Journals.

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

IV.—Contributions to the Journal.

Articles submitted for publication must be typed in *duplicate*. With reference to Army Regulations, India, Volume II, paragraph 204 and King's Regulations, paragraph 509, action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee.

Instructions for the preparation of drawings and plans for reproduction by lithography.

These should be in *jet black*. No washes or ribands of colour should on any account be used.

If it is absolutely necessary to use colour (and these are only permissible in line work or names) the following will reproduce photographically, *i.e.* :—

Dark red, dark orange, dark green. No other colour should on any account be used.

V.—Library Rules.

1. The Library is only open to members and honorary members of the United Service Institution of India. Members are requested to look upon books as not transferable to their friends.

2. No book shall be taken from the Library without making the necessary entry in the register. Members residing permanently or temporarily in Simla are requested to enter their addresses.

3. The United Service Institution of India is open all the year round—including Sundays—from 9 A.M. until sunset. Books may be taken out at any time provided Rule 2 is complied with.

4. A member shall not be allowed, at one time, more than three books or sets of books.

5. Papers, magazines, "works of reference" or books marked "Not to be taken away," or noted as "Confidential" may not be removed.

6. No particular limit is set as to the number of days for which a member in Simla may keep a book, the Council being desirous of making the library as useful as possible to members ;

but if after the expiration of a fortnight from date of issue it is required by any other member it will be re-called.

7. Applications for books from members at out-stations are dealt with as early as possible, and books are despatched per Registered V.-P. P. They must be returned carefully packed per Registered Parcel Post within one month of date of issue, or application made for permission to retain them for a further period. This will always be granted unless the book is required by another member.

8. If a book is not returned at the end of four months, it must be paid for without the option of return, if so required by the Executive Committee.

9. Lost and defaced books shall be replaced at the cost of the member to whom they were issued. In the case of lost books which are out of print the value shall be fixed by the Executive Committee, and the amount, when received, spent in the purchase of a new book.

10. The issue of a book under these rules to any member implies the latter's compliance with the rules, and the willingness to have them enforced, if necessary, against him.

11. A list of all books presented and purchased, and also a list of books useful to members studying for the Staff College and Promotion Examinations, will be found under Secretary's Notes in the quarterly issue of the U. S. I. Journal. Members are invited to note any books which they think might with advantage be procured for the Institution. The suggestions will be placed before the Secretary.

12. Members are invited to contribute presents of books, maps, and photographs of naval and military interest. These may be addressed to the Secretary, U. S. I. of India, Simla. They will be duly acknowledged.

VI.—Library Catalogue.

The new catalogue completed to 31st March 1924 is now available. Price Rs. 3-8-0 or postage paid Rs. 3-14-0.

VII.—Gold Medal Prize Essay.

Gold Medal Prize Essay Competition, 1924-25.

The Council have chosen the following subject for the Gold Medal Essay for 1924-25 :—

"How can the balance be best maintained between the following considerations affecting the Regimental Officer :—

(a) The claims of his unit.

(b) The claims of his military education, in the widest sense, in the form of extra-regimental courses?"

The following are the conditions of the competition :—

- (1) The competition is open to all gazetted officers of the Civil Administration, the Royal Navy, Army, and Royal Air Force or Auxiliary Force who are members of the U. S. I. of India.
- (2) Essays must be printed or type-written and submitted in *triplicate*.
- (3) When a reference is made to any work, the title of such work is to be quoted.
- (4) Essays are to be *strictly anonymous*. Each must have a motto, and enclosed with the essay, there should be sent a *sealed* envelope with the motto written on the outside and the name of the competitor inside.
- (5) Essays will not be accepted unless received by the Secretary on or before the 30th June 1925.
- (6) Essays will be submitted for adjudication to 3 judges chosen by the Council. When the decisions of the 3 judges are received the Committee will submit the four essays, placed first in order by the judges, with their recommendations on the award of the Gold Medal to the Council, who will decide whether the Medal is to be awarded and whether the essay be published.
- (7) The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1925.
- (8) All essays submitted are to become the property of the United Service Institution of India, *absolutely* and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.

- (9) Essays should not exceed about 15 pages of the size and style of the Journal, exclusive of any appendices, tables or maps.

By order of the Council,

SIMLA :
1st April, 1925. }

E. J. ROSS, MAJOR,
Secretary, U. S. I. of India.

VIII.—Army List pages.

The U. S. I. is prepared to supply members and units with manuscript or type-written copies of Indian Army List pages, at the following rate:—

Type-written, per page, Rs. 2.

IX.—

Books Presented.

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
1. Elementary Imperial Military Geography (revised and enlarged edition).	1924	Captain D. H. Cole.
2. Some Aspects of Imperial Communications. (Both the above published and presented by Messrs. Sifton Præd and Co., London.)	1924	A. V. T. Wakeley.
3. Princes of Wales (Presented by the publishers, H. F. W. Deane, London.)	... 1922	F. M. Bridge.
4. Mesopotamian Campaign, Vol. II (Official History of the War). (Presented by the Director of Publications, H. M. S. O., London.)	1923	Brig.-Genl. F. J. Moberly.
5. Medical Services, General History, Vol. 4. (Official History of the War.) (Presented by the Director of Medical Services.)	1924	Major-General Sir W. G. Macpherson, and Major T. J. Mitchell.

- | <i>Title.</i> | <i>Published.</i> | <i>Author.</i> |
|---|-------------------|------------------------------|
| 6. Promotion Examination Report
(Presented by Director of
Staff Duties, War Office) | 1924 | |
| 7. India, 1923-24
(Presented by Government of
India, Calcutta.) | ... 1924 | L. F. Rushbrook
Williams. |
| 8. Official History of Australia in
the War. The Story of the
Anzac, Vol. II.
(Presented by the Publishers
Angus and Robertson,
Sydney.) | 1922 | C. E. W. Bean. |
| 9. The Military uses of Astronomy
(Presented by Longman's
Green and Co., London.) | 1924 | F. C. Molesworth. |
| 10. Tibet Past and Present
(Presented by the Oxford Uni-
versity Press.) | ... 1924 | Sir C. Bell. |
| 11. History of the 26th Punjabis,
1857—1923.
(Presented by the C. O.—Col.
S. P. Stoney.) | 1924 | |
| 12. Through Thirty Years, Vols. 2.
(Presented by the Publishers
W. Heinemann, London.) | 1924 | H. Wickham Steed. |
| 13. Eastern Command Manœuvres
held near Delhi, January,
1925.
(Presented by General Staff
Branch.) | 1925 | |
| 14. The Military Side of Japanese
Life.
(Presented by the Oxford Uni-
versity Press, Bombay.) | 1924 | Capt. M. D. Kennedy. |

Books Purchased.

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
1. British Secret Service during the Great War.		N. Everitt.
2. Whitaker's Almanac ...	1925	Whitaker.
3. The Reign of Leopold 1865—1909. (Part 3) 2 Vols.	1925	Demetrius C. Boulger.
4. French Headquarters, 1915—18	1924	Jean de Peirrefeu.
5. The Life of Lord Wolseley ...	1924	Major-Genl. Sir F. Maurice.

Books on Order.

1. The New World Problems in Political History. 1924 I. Bowman.
2. Yilderim ... Dr. Steuber.

X.—Pamphlets.

The following are available for sale on application to the Secretary :—

- (a) British and Indian Road Space Tables (separately). Price as. 8 each plus postage. It is suggested that these may be useful for staff rides, etc.
- (b) Diagram of Ammunition Supply (India). Price as. 4, plus postage.
- (c) Skeleton Diagram of Signal Communications of a Division. Price as. 6, plus postage.
- (d) Home War Establishment Tables (provisional). Price Re. 1-4-0 per copy, plus postage.

XI.—Schemes.

The following schemes based on lectures given at the course for officers studying for the Staff College Entrance Examination, are now available for sale, on application to the Secretary :—

- (a) Mountain Warfare (with four problems). Price Rs. 4, plus postage.
- (b) Administration (with one problem). Price Rs. 2, plus postage.
- (c) Artillery (with one problem). Price Rs. 2, plus postage.

To save expense to officers, maps, other than sketch maps, are not being supplied by the Institute. It is thought that the maps required will be readily obtainable by students.

These are for (a) Survey of India maps of Waziristan and Baluchistan, and for (b) and (c) Map 1/100,000 Rheims (1st Training for War Paper. Staff College Entrance Examination, 1924).

In addition two Tactical Schemes suitable for Promotion Examination are available. (Price Rs. 5 each, with maps).

(d) Captain to Major.—1 Scheme.

(e) Lieut. to Captain.—1 Do.

Other Schemes are in preparation.

United Service Institution of India.

Prize Essay Gold Medallists.

(With rank of Officers at the date of the Essay)

- 1872.. ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.
- 1873.. COLQUHOUN, Capt. J. S., R.A.
- 1874.. COLQUHOUN, Capt. J. S., R.A.
- 1879.. ST. JOHN, Maj. O. B. C., R.E.
- 1880.. BARROW, Lieut. E. G., 7th Bengal Infantry.
- 1882.. MASON, Lieut. A. H., R.E.
- 1883.. COLLEN, Maj. E. H. H., s.c.
- 1884.. BARROW, Capt. E. G., 7th Bengal Infantry.
- 1887.. YATE, Lieut. A. C., 27th Baluch Infantry.
- 1888.. MAUDE, Capt. F. N., R.E.
YOUNG, Maj. G. F., 24th Punjab Infantry (specially awarded
a silver medal).
- 1889.. DUFF, Capt. B., 9th Bengal Infantry.
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- 1891.. CARDEW, Lieut. F. G., 10th Bengal Lancers.
- 1893.. BULLOCK, Maj. G. M., Devonshire Regiment.
- 1894.. CARTER, Capt. F. C., Northumberland Fusiliers.
- 1895.. NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.
- 1896.. BINGLEY, Capt. A. H., 7th Bengal Infantry.
- 1897.. NAPIER, Capt. G. S. F., Oxfordshire Light Infantry.
- 1898.. MULLALLY, Maj. H., R.E.
CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a
silver medal).
- 1899.. NEVILLE, Col. J. P. C., s.c.
- 1900.. THUILLIER, Capt. H. F., R.E.
LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).
- 1901.. BARKEN, Lieut.-Col. G. P. P., 46th Punjab Infantry.
- 1902.. TURNER, Capt. H. H. F., 2nd Bengal Lancers.
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BOND, Capt. R. F. G., R.E. (specially awarded a silver medal).
- 1904.. MACMUNN, Maj. G. F., D.S.O., R.F.A.
- 1905.. COCKERILL, Maj. G. K., Royal Warwickshire Regiment.
- 1907.. WOOD, Maj. E. G. M., 99th Deccan Infantry.
- 1908.. JEUDWINE, Maj. H. S., R.A.
- 1909.. MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.
ELSMIE, Maj. A. M. S., 56th Rifles, F. F. (specially awarded
a silver medal).
- 1911.. MR. D. PETRIE, M.A., Punjab Police.
- 1912.. CARTER, Maj. B. C., The King's Regiment.
- 1913.. THOMSON, Maj. A. G., 58th Vaughan's Rifles (F.F.).
- 1914.. BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs (F.F.).
NORMAN, Maj. C. L., M.V.O., Q.V.O., Corps of Guides (specially
awarded a silver medal).
- 1915.. No Award.
- 1916.. CRUM, Maj. W. E., V.D., Calcutta Light Horse.
- 1917.. BLAKER, Maj. W. F., R.F.A.
- 1918.. GOMPERTZ, Capt. A. V., M.C., R.E.
- 1919.. GOMPERTZ, Capt. M. L. A., 108th Infantry.
- 1920.. KEEN, Lt.-Col. F. S., D.S.O., 2/15th Sikhs.
- 1921.. No Award.
- 1922.. MARTIN, Maj. H. G., D.S.O., O.B.E., R.F.A.
- 1923.. KEEN, Colonel F. S., D.S.O., I.A.
- 1924.. No award.

MACGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—silver medal.

(b) For soldiers—British or Indian—silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

Note.

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council Meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

MacGregor Memorial Medalists.

(With rank of officers at the date of the Award.)

1889.. BELL, Col. M. S., V.C., B.E. (specially awarded a gold medal).

1890.. YOUNGHUSBAND, Capt. F. E., King's Dragoon Guards.

* *N.B.*—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves, also those serving in Auxiliary Forces, such as the Volunteers and Corps under Local Governments, Frontier Militia, Levies and Military Police, also all ranks serving in the Imperial Service Troops.

MacGregor Memorial Medalists—(contd.).

- 1891.. SAWYER, Major H. A., 45th Sikhs.
RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.. VAUGHAN, Capt. H. B., 7th Bengal Infantry.
JAGGAT SINGH, Havildar, 19th Punjab Infantry.
- 1893.. BOWNE, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).
FAZALDAD KHAN, Dafedar, 17th Bengal Cavalry.
- 1894.. O'SULLIVAN, Major G. H. W., R.E.
MULL SINGH, Sowar, 6th Bengal Cavalry.
- 1895.. DAVIES, Capt. H. R., Oxfordshire Light Infantry.
GANGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.. COCKBRILL, Lieut. G. K., 28th Punjab Infantry.
GHULAM NABI, Sepoy, Q. O. Corps of Guides.
- 1897.. SWAYNE, Capt. E. J. F., 10th Rajput Infantry.
SHAHZAD MIR, Dafedar, 11th Bengal Lancers.
- 1898.. WALKER, Capt. H. B., Duke of Cornwall's Light Infantry.
ADAM KHAN, Havildar, Q. O. Corps of Guides.
- 1899.. DOUGLAS, Capt. J. A., 2nd Bengal Lancers.
MIHR DIN, Naik, Bengal Sappers and Miners.
- 1900.. WINGATE, Capt. A. W. S., 14th Bengal Lancers.
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.. BURTON, Maj. F. B., 17th Bengal Lancers.
SUNDAR SINGH, Colour Havildar, 31st Burma Infantry.
- 1902.. RAY, Capt. M. B. E., 7th Rajput Infantry.
TILBIE BHANDARI, Havildar, 9th Gurkha Rifles.
- 1903.. MANIFOLD, Lieut.-Col. C. C., I.M.S.
GHULAM HUSSAIN, Lance-Dafedar, Q. O. Corps of Guides.
- 1904.. FRASER, Capt. L. D., R.G.A.
MOGHAL BAZ, Dafedar, Q. O. Corps of Guides.
- 1905.. BENNICK, Maj. F., 40th Pathans (specially awarded gold medal).
MADHO RAM, Havildar, 8th Gurkha Rifles.
- 1906.. SHAHZADA AHMAD MIR, Risaldar, 36th Jacob's Horse.
GHAFUR SHAH, Lance-Naik, Q. O. Corps of Guides Infantry.
- 1907.. NANGLE, Capt. M. C., 92nd Punjabis.
SHAIKH USMAN, Havildar, 103rd Mahratta Light Infantry.
- 1908.. GIBBON, Capt. C. M., Royal Irish Fusiliers.
MALANG, Havildar, 56th Punjab Rifles.
- 1909.. MUHAMMAD RAZA, Havildar, 106th Pioneers.

MacGregor Memorial Medalists—(concl'd.).

- 1910.. SYKES, Maj. M., c.m.g., late 2nd Dragoon Guards (specially awarded a gold medal).
 TURNER, Capt. F. G., R.E.
 KHAN BAHADUR SHEER JUNG, Survey of India.
- 1911.. LEACHMAN, Capt. G. E., The Royal Sussex Regiment.
 GURMUKH SINGH, Jemadar, 93rd Burma Infantry.
- 1912.. PRITCHARD, Capt. P. P. A., 83rd Wallahabad Light Infantry (specially awarded a gold medal).
 WILSON, Lieut. A. T., c.m.g., 32nd Sikh Pioneers.
 MOHIBULLA, Lance-Dafedar, Q. V. O. Corps of Guides.
- 1913.. ABBAY, Capt. B. N., 27th Light Cavalry.
 SIRDAR KHAN, Sowar, 39th (K.G.O.) Central India Horse.
 WARATONG, Havildar, Burma Military Police (specially awarded a silver medal).
- 1914.. BAILLY, Capt. F. M., I.A. (Political Department).
 MORSHEAD, Capt. H. T., R.E.
 HAIDAR ALI, Naik, 106th Hazara Pioneers.
- 1915.. WATERFIELD, Capt. F. C., 45th Rattray's Sikhs.
 ALI JUMA, Havildar, 106th Hazara Pioneers.
- 1916.. ABDUR RAHMAN, Naik, 21st Punjabis.
 ZARGHUN SHAH, Havildar, 53th Rifles (F. F.) (specially awarded a silver medal).
- 1917.. MIAN AFRAZ GUL, Sepoy, Khyber Rifles.
- 1918.. NOEL, Capt. E. W. C. (Political Department).
- 1919.. KEELING, Lt.-Col. E. H., m.c., R.E.
 ALLA SA, Jemadar, N.-E. Frontier Corps.
- 1920.. BLACKER, Capt. L. V. S., Q. V. O. Corps of Guides.
 AWAL NUR, C. Qm. Havildar, 2nd Bn., Q. V. O. Corps of Guides.
 (Special gratuity of Rs. 200.)
- 1921.. HOLT, Major A. L., Royal Engineers.
 SHER ALI, Sepoy No. 4952, 106th Hazara Pioneers.
- 1922.. ABDUL SAMAD SHAH, Capt., o.b.e., 31st D. C. O. Lancers.
 NUR MUHAMMED, Lance-Naik, 1st Guides Infantry, F. F.
- 1923.. BRUCE, Capt. J. G., 2 6th Gurkha Rifles.
 SOHBAT, Head Constable, N.-W. F. Police.
 HARI SINGH THAPA, Survey Department.
- 1924.. HAVILDAR RAHMAT SHAH, N.-W. F. Corps.
 NAICK GHULAB HUSSAIN, N.-W. F. Corps.

The Journal

OF THE

United Service Institution of India.

Vol. LV APRIL, 1925 No. 239

EDITORIAL.

To all soldiers in this country the Eastern Command Manœuvres held in the neighbourhood of Delhi, have been of exceptional interest. These, it should be noted, are the first military exercises on a large scale which have been held in this country since the war, and are the first, we believe, in which aeroplanes, armoured cars and tractor-drawn artillery have taken part.

We do not intend here to discuss the operations in any detail. An excellent and full report on the subject has already been issued by the General Staff, and will soon be in the hands of all. There are, however, certain points which must be given great cause for reflection to any soldier who was fortunate enough to be present.

The primary object of the manœuvres was, of course, to give the Commanders and Staffs concerned an opportunity of shaking off those trench warfare ideas which became so ingrained in them during the long years of stationery warfare—to let them get used to mobility and the handling of mobile weapons. For this purpose the opposing forces and the plan of operations were well constituted—on one side highly mobile troops fighting to delay, and on the other a stronger, but less mobile force, fighting to achieve a decision as rapidly as possible.

Most of us, I think, were tremendously impressed by the possibilities suggested by the action of the armoured cars. It seems difficult to exaggerate the possibilities possessed by well designed and well handled weapons of this nature in similar country. Whether or not all they attempted during the manœuvres could have been carried out on the actual battlefield it is

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impossible to say. That can only be decided when real shells and bullets begin to fly. One thing, however, is certain. Wherever the country is really suitable they will have a terribly cramping effect on infantry action. They are capable of easy concealment and rapid movement, while their mobility will be greatly enhanced when the next step is taken, that of providing them with tracks instead of wheels. They can develop a large volume of accurate fire, while they are almost invulnerable to the weapons carried by the infantry soldier. No infantry commander can now disregard the possibility of counter-attack by them, and their moral effect, both on commanders and troops will always be great. It looks as though infantry might well become paralysed by their presence where the ground is suitable, unless provided with proper means of defence.

The remedy, of course, lies in the provision of light artillery capable of rapid and accurate fire at close quarters, and able to accompany the infantry wherever it goes. As a temporary solution the increased use of forward pack guns is recommended. But this is an expedient only, for no one can seriously contend that the pack gun is the best possible weapon for the purpose. The proper counter to armour and mobility is armour and mobility. What is required is a much more mobile and better protected weapon—a gun mounted on a tank. And this brings us back to the old race between armaments. To destroy tanks heavier tanks are required, and so the race goes on. Many of us, I think, who watched these manœuvres, carried away the impression that the day is not so far away, when, on ground of this nature, infantry action will be preceded and flanked by regular tank actions, fought on lines similar to fleet actions at sea.

The correct handling of artillery in this sort of warfare presents considerable difficulty—the problem being to get the best possible value out of the limited amount of ammunition which can be carried by mobile echelons. Modern weapons have so increased fire power that a well posted rearguard or delaying force of a battalion and a couple of cavalry regiments should be quite able to hold up the advance of one or even two brigades until the attacker is able to develop a considerable volume of artillery fire. What is a commander to do when he finds his leading troops being held up by gradually increasing resistance? He cannot normally tell what he is up against, and his first move must be to get his artillery into position to support the advance of his infantry. Even, however, if the resistance is strong enough to call

for a properly staged attack, he is still in a quandary. The difficulty of ammunition supply will not permit him to fire a regular and sustained barrage, and if he fires a regular artillery programme its scope must be strictly limited. In this sort of warfare he cannot afford to allow his guns to shoot at mythical positions which may or may not be held by the enemy. He is only justified in turning them on to points actually known to be held by the enemy, and from which opposition is actually being met. This is only possible with first rate inter-communication. In fact the questions of artillery support and inter-communication are inseparably bound together.

Another point which can hardly fail to strike the thoughtful is the little attention which we, as a whole, have given to the questions of tactical defence against aircraft in mobile warfare. We do not mean to refer to the defence of such points as permanent depôts, great railway centres, or other important points on the lines of communication, but to the protection of the actual mobile units of a force in the field.

In an Eastern Theatre of war, devoid as it is of cover, how is the approach march to be conducted against a force even reasonably provided with aircraft? Night movements will of course be common, but we cannot always move at night. Must all daylight movements be carried out in artillery formations, and if so, what will be the physical result on the troops? Again, how are the trains to be moved and how are the refilling points to be protected? They can be most active, it is true by night, but they cannot disappear down rabbit holes at dawn. Surely attack on these will be one of the first means used by hostile aircraft to delay an advance. Local command of the air is, of course, the primary remedy, but it cannot always be guaranteed. Ground troops must be prepared at all times for attack from the air, and this applies equally to all field units such as trains, ammunition columns and the like. The question of supply under such conditions is a real problem for the future.

* * * * *

Although the Reparations question has been definitely crystallised into action in accordance with the Dawes' report, the situation in Western Europe is still not such as to give much cause for comfort. The question of security has, it is true, been definitely disentangled from that of reparations, and that is a great step in

making clear the points at issue, but the atmosphere is still such as to raise grave doubts of the stability of peace.

British Public opinion, it is true, is not much interested in the question of security. There is a comfortable assurance at home that this is a matter for France, and that we, as a nation, are not much affected thereby. This we hold to be a completely mistaken attitude. Britain is as much interested in the peace of Europe as is any other nation, and in the event of a disturbance of that peace, she could not fail to be drawn in. M. Herriot is the avowed leader in France of a policy of peace and conciliation. When the chief spokesman of such views is constrained to refer to the German menace as a "dagger held within a few inches of the French frontier," and when discussions between the two countries are conducted with the bitterness which at present prevails, there is undoubtedly grave cause for anxiety. This anxiety is hardly allayed by the disavowals on both sides of any aggressive intentions. Relations between the two countries are still impaired by an atmosphere of deep distrust and bitter hatred, and it is in surroundings of this nature that the seeds of a great conflict are most likely to thrive.

Under such conditions the British attitude becomes extremely difficult. The peace of Europe must of course be our first and foremost aim. But here we are faced with a grave dilemma. If we fail to give a guarantee to France against possible German aggression, there is a serious danger that we drive her into taking the more drastic steps which she considers necessary for her own security. On the other hand it is extremely difficult to find a means of giving a practical guarantee to France without giving the appearance of provocation to Germany. In either case the seeds of further bitterness are sown. Although a guarantee of the security of France would probably be the most certain means of securing the peace of Europe for the next few years, it would afford at the best, only a temporary solution. A definite and final peace in Europe can only be obtained by the removal of the atmosphere of mutual distrust which at present obscures the relations between the two countries. Any policy which we adopt on the security question must be one calculated to remove this and to encourage a calm and frank discussion of the fears and dangers by which both sides are obsessed.

At the moment of going to Press, indications point to an endeavour to find a solution in the form of a security pact,

embracing Britain, France and Belgium. If this is to be of real value, however, in affording a permanent solution, Germany must not be excluded.

* * * * *

The decision to proceed with the Naval Base at Singapore is an official recognition of the fact that the Pacific must be regarded as one of the danger points of the Empire. For us in India this is a matter of the greatest significance, for it means that we now have to look towards the East as well as the West.

When considering the point of view of defence in the Pacific, the first and most obvious point which strikes one, is the closeness with which Indian and Australian interests are bound together strategically. Obviously, in a war embracing the Pacific, India and Australia must act in the closest co-operation. Each is the base from which the other can be most readily reinforced. It is, too, not difficult to imagine a situation in which, the arms of the rest of the Empire being fully employed in Europe, India and Australia might be called upon together to bear the brunt of war in the East. It is obvious that the time has come for a much closer study of each others powers and limitations, for it is not too much to say that at present the average officers of each are supremely ignorant of the others military resources.

This acknowledgement of the strategic importance of the Pacific must sooner or later bring into prominence the importance of improving our strategic communications with our Eastern Frontiers. It is idle to urge that the present situation in the East does not warrant fears of aggression towards our frontiers. The mere fact that it has been found necessary to make it possible for our fleet to operate in the East, shows that in this direction lies one of the danger points of the Empire. Temporary political groupings cannot be relied upon for safety, for these may change with considerable rapidity, while railway communications through difficult country take years to construct.

We do not pretend to any knowledge of naval strategy, but an appreciation of the increasing power and efficiency of modern submarine action requires no great learning. It seems obvious that a shortening of overseas communications might be of vital importance to the navy in a future war. The possibility of the use of Rangoon instead of Indian ports for the embarkation of

troops for Singapore or beyond in the event of war seems to be well worthy of consideration. This would give a shorter and much more easily protected route, and the saving in naval protection against submarines and raiders would be enormous.

* * * * *

Whatever be the truth of the reports received from Turkish sources with regard to the revolt in North-East Kurdistan, they must be a cause of serious anxiety. Even should they prove, as appears probable, to be grossly exaggerated, they cannot fail to portend embarrassing movements of Turkish troops in the neighbourhood of the Mosul frontier, and the operations of the boundary commission must be prejudiced thereby.

If the report be true, and if the revolt has really attained the dimensions suggested, then there is always a very serious danger that it may not be possible to prevent at least some of the tribes on the Iraq side of the administrative boundary from making common cause with their kinsmen against the Turks. This is a disadvantage which almost invariably follows the drawing of a boundary line on geographical rather than on ethnographical considerations, and is increased when political control is as weak as it is in the Kurdish mountains.

On the other hand, although the Kurd has a finely developed national pride, this feeling has so far never been able to lead to concerted national action. The tribes so far reported to be involved are very remote geographically and sentimentally from those on the more immediate frontiers of Iraq. It may therefore be possible to keep the trouble strictly localised. Nevertheless there is always the danger that news of some initial success may cause an outburst of national pride which may, for a time at least, lead to unity of action by the greater part of the Kurdish nation.

* * * * *

We would particularly call the attention of members to the article on the subject of Cost Accounting which appears in the present number of the Journal. This is the first of a series of three articles dealing with the subject. The objects of these are, firstly, to set forth the real meaning of Cost Accounting, secondly, to give some practical idea of the working of the system, and thirdly, to show how it can be turned to practical advantage by executive officers in improving the administration of their own units or formations. While we know that most officers turn with loathing

from everything connected with accounts, we feel sure that a study of these articles will be of good value, both from the point of view of interest and of instruction. It will add greatly to the interest and utility of these articles if members will put forward any questions they may have to raise on this subject. Every endeavour will be made to deal with these fully in the Correspondence Column.

* * * * *

It is hoped that members will find the Correspondence Column, which has been started on new lines in the present number, of interest. The Editor would like to take this opportunity of thanking the many contributors who have come forward and given this a fair start. His thanks are also due to the many busy persons he has harassed in the endeavour to obtain the best possible answers to these numerous and interesting conundrums. It is regretted that lack of space has compelled us to hold over several questions, and has also prevented full justice being done to several of the interesting topics raised. We hope members will not remain satisfied with reading, but will themselves enter the arena, and come forward with other conundrums, or better still with criticisms of the replies given.

* * * * *

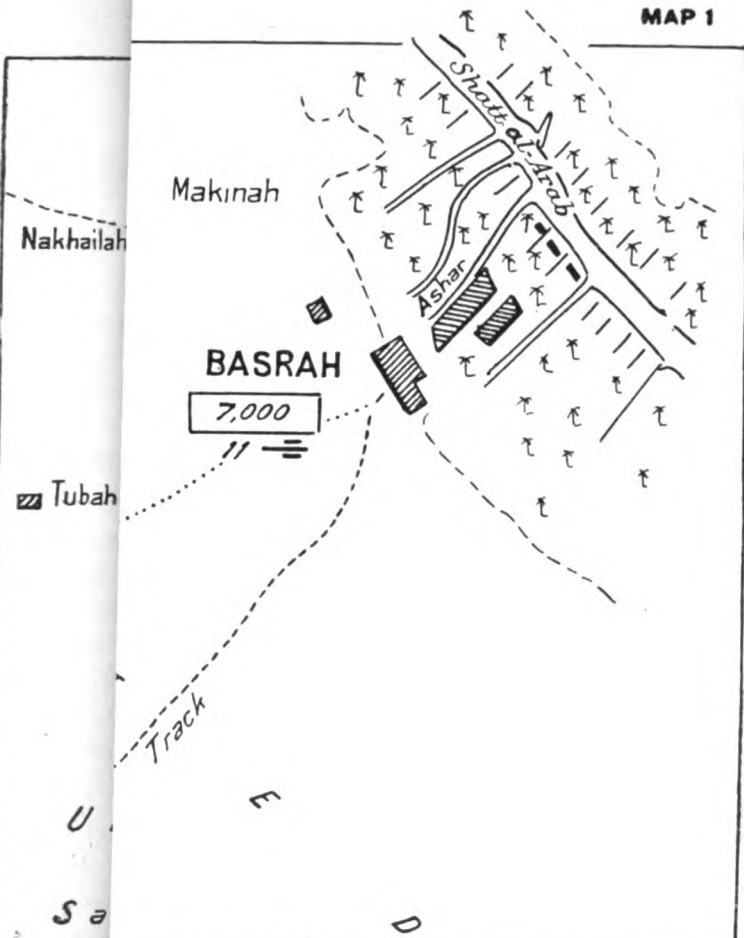
The Institute has suffered a real loss through the retirement of Miss Sussens who has, for many years, ably filled the post of librarian. We are sure that all members will unite in thanking her for the personal interest she has always taken in meeting their literary requirements in the past, and in wishing her all good luck and prosperity in the future.

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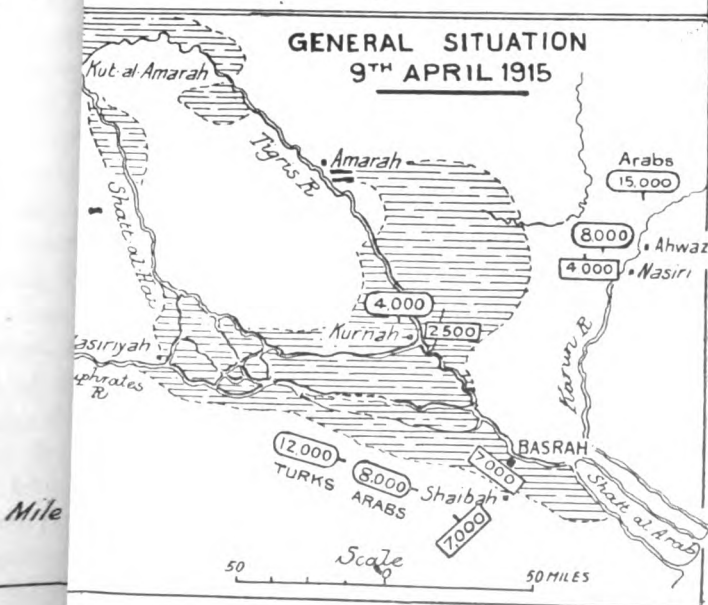
We really must remind members that their subscriptions are due annually *in advance* on the 1st of January. The Institute has no large reserves of capital and is compelled to adjust its expenditure to money actually in hand. At the present moments we are being seriously cramped for lack of ready money. We are unable, for instance, to print more schemes for the benefit of members going up for examinations. Every endeavour is being made to keep the standard of the Journal as high as possible, but this costs money. There is a grave danger at present that a saving will have to be effected in such items as the number and quality of maps, etc., published with articles.

Members can assist in two ways—firstly, be making sure that their subscriptions are paid on the date due, and secondly, by inducing other officers to join. A comparatively small increase in membership would have a very great effect on the benefits to be derived from belonging to the Institution.

MAP 1



**GENERAL SITUATION
9TH APRIL 1915**



THE BATTLE OF SHAIBAH, 12TH, 13TH AND 14TH APRIL 1915.

(This narrative is based on the War Diaries, on the Official Account of the Campaign, and on information which was obtained from individuals who took part in the action.)

By Major-General Sir W. D. Bird, K.B.E., C.B., O.M.G., D.S.O.

It is said that every one of our acts, great or small, is recorded indelibly in our bodies, and that it then exerts some influence on all subsequent conduct. Similarly every one of the conflicts that take place during a campaign must in some way affect the final result. But when, as was the case in regard to the battle of Shaibah, the action is fought out at the culmination of a great counter-attack, its issue cannot fail to be of primary importance to the future of the operations.

So large a portion of the Indian army took part in the campaign in Mesopotamia, that the general course of the operations which preceded the battle of Shaibah is doubtless well known. In accordance with a policy which more than once had in the past been crowned at any rate with initial success, the British in November, 1914, transported a force of about one division, the 6th (Poona) Division, by sea to an enemy area which could not so easily be reached by a defending Turkish force moving over the land; and the troops quickly captured first Basrah and then Kurnah. (Map 1.) In the report of the Mesopotamia Commission it is stated that: "When at the commencement of the campaign the 6th Division was ordered to the Persian Gulf.....we cannot find that the India Office or their Military Adviser, Sir Edmund Barrow, ever contemplated or arranged for its reinforcement in case of need....." As a result the British were obliged to remain on the defensive, and in consequence the Turks were able to recover from their surprise and to move a considerable body of troops into the country. In the early part of 1915, therefore, the military authorities both in England and India were in agreement that the situation of the 6th Division had become dangerous. But, according to the report of the Commission, "so reluctant were the Government of India to comply with these increased demands that

in March, 1915, it was only under the compulsion of a most imperative order from Whitehall that the reinforcements necessary to bring the force up to a strength of two divisions were sent."

These reinforcements happily arrived in time to save the situation. But a new Commander-in-Chief, Lieutenant-General Sir John Nixon, only reached Basra on the 9th April. And two days later the Turks and Arabs began their final advance against the British detachment that was covering, in an entrenched camp at Shaibah, the western approaches to Basrah and our communications with the sea down the Shatt-al-Arab.

The general situation of the British and Turkish forces on the 9th April was as shown in Map 1. The fighting troops of the garrison of Shaibah then comprised: the 6th Cavalry Brigade, under Brigadier-General H. Kennedy, consisting of the 7th Lancers, the 16th Cavalry, the 33rd Cavalry and "S" Battery Horse Artillery, 8 squadrons and 6 13-pounder guns; the 63rd Field Battery, 5 18-pounder guns; the 76th Field Battery, 6 18-pounder guns; the 23rd Mountain Battery, 6 10-pounder mountain guns; the 16th Infantry Brigade, under Brigadier-General W. S. Delamain, which comprised the 2nd Dorsetshire Regiment, 104th Wellesley's Rifles, 1/17th Mahrattas, 1/19th Infantry; the 18th Infantry Brigade, under Major-General C. I. Fry, consisting of the 2nd Norfolk Regiment, 48th Pioneers, 110th Mahratta Light Infantry, 120th Rajputana Infantry; the 17th and 22nd Companies of Sappers and Miners (less one section), the 34th Divisional Signal Company (less one section) and the Wireless Troop (less two pack sets); or some 7,000 fighting men with 23 guns. At Basrah there were the 30th Infantry Brigade (three battalions), the 33rd Infantry Brigade (two battalions), the 7th Rajputs, the 20th Punjabis, the 1/5th Hampshire Howitzer Battery of 4 5-inch howitzers, the 30th Mountain Battery and one or more post guns. It was thought that the enemy's troops were under the personal command of Sulaiman Askari, the Commander-in-Chief, who, however, was still suffering from a wound which he had received during some fighting near Kurnah; and it was believed that the force which was moving from Nasiriyah contained: one Turkish reserve division, one Turko-Arab division and one cavalry brigade, or about 12,000 fighting men with from 24 to 30 guns none of which were of modern pattern. It was also estimated that there were with the Turks, under chieftains named Ajaimi and Yusaf, perhaps as many as 1,200 mounted and from 6,000 to 8,000 unmounted armed Arabs, some of whom were in boats; and 1,000 Kurdish irregulars in addition.

In Mesopotamia the sun rises in April at about 5-30 A.M. and sets at approximately 6-30 P.M. and on the 11th, one and a half hours after sunrise, the cavalry patrols that had as usual been sent out from Shaibah for the purpose of feeling for the Turks, found that not only had Barjisiyah wood and Chuwaibdah (Shwaibda) been occupied by enemy's mounted men, but a column of 4,000 infantry and a number of Arabs were also observed to be moving towards Chuwaibdah from the north-west. Mounted reinforcements were now sent from Shaibah, and with their assistance the patrols were able to maintain their positions until 3-45 P.M. when the forward groups were driven in. A quarter of an hour later the remainder of the 6th Cavalry Brigade, under Brigadier-General H. Kennedy, moved out from Shaibah with the support of a small mixed column of infantry and artillery, and the Turkish and Arab horsemen then withdrew to Barjisiyah wood. (Map 1.)

The intelligence that was received in regard to the movements of the enemy during the day by Major-General C. I. Fry, who was in command of the garrison of Shaibah, was such as to incline him to suppose that an offensive would be begun during the night. Whatever may have been the case earlier in the month when the Turks were gradually forming an advanced base at Nakhilah, there was, owing to the superior numbers of the enemy and the open nature of the ground, now no alternative before the British but to wait in their entrenchments on the preliminary operations of the enemy. For had they advanced to meet the Turks the troops might have been surrounded in waterless desert and held there until both they and their ammunition were exhausted. All tents, therefore, were struck in the evening and the units occupied their alarm posts. Meanwhile Sir John Nixon had already decided to send the 30th Brigade, under Major-General C. J. Melliss, V.C., the commander of the brigade, to Shaibah on the 12th from Basrah,* and to visit the place himself on that day.

The entrenched camp at Shaibah (Maps 1 and 2) which was now about to be attacked, was situated in the desert and on the very edge of the area which is flooded by the annual inundation of the Euphrates. The defences of the place consisted of an irregular semi-circle of trenches three and a half miles in length, the inner flanks of which rested on the ground that was under water, and in front of the trenches were entanglements of wire. Inside the perimeter there were two large houses and three walled gardens. On the southern and western fronts the entrenchments ran

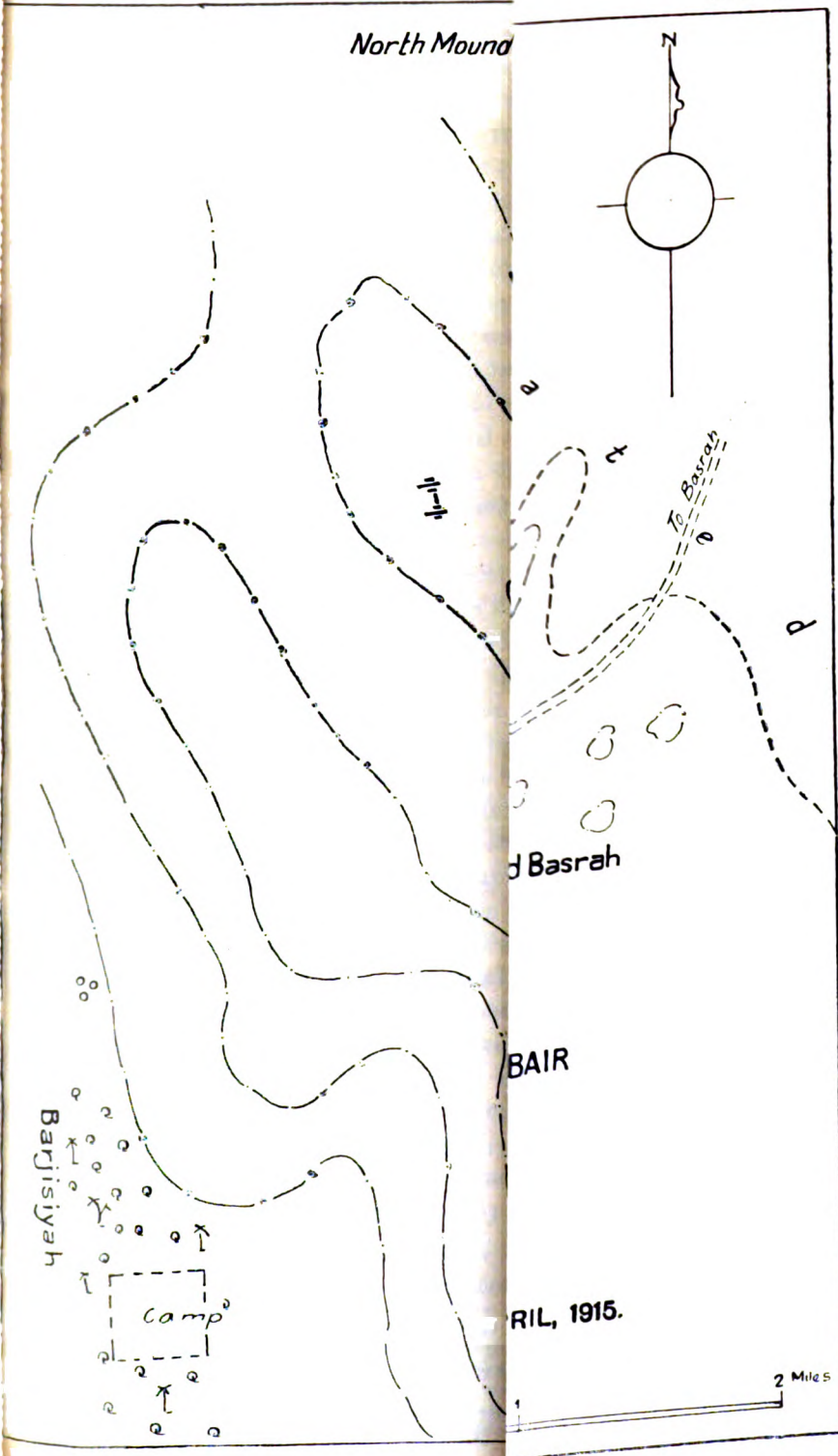
* It seems that Lieut.-General Sir A. A. Barrett, the predecessor of Sir John Nixon, had decided that it would be judicious to increase the reserves of food and ammunition at Shaibah before adding to the size of the garrison.

the Turkish guns that were near the South Mound; for their positions had accurately been fixed by the observing officers in the clear morning light and the trained personnel were in consequence quickly disabled by our shrapnel. It was probably in consequence of this that the enemy's field guns were afterwards badly handled, they were kept far back so as to be out of the sight of our gunners, their shells generally burst too much above the targets, and their fire throughout the remainder of the battle was therefore ineffective. The Turko-Arab regular troops had meanwhile deployed to the west and south-west of Shaibah, and at about 6 A.M. these advanced against the area between the Cairn Post and the High Kiln. The attack was not really pressed forward except from the direction of the South Mound, and even this died away under the fire of our artillery, infantry and machine guns. At 8 A.M., therefore, the Turko-Arabs finally drew back out of rifle range, except for some small parties of men who began to dig trenches about a mile from the positions that were being held by the British. In another hour a somewhat half-hearted attack which had been made by the Arabs under Ajaimi and Yusaf from Zubair and Old Basrah also broke down, although enemy groups effected lodgments in the small groves of tamarisks not far from the Cairn Post. A number of Arabs and Kurks, under Said Yazdi, advancing from the direction of Anah's Tomb also occupied the North Mound at about 9 A.M. and the three walled houses near it.

Soon after noon the Turks were able to withdraw their guns from the neighbourhood of the South Mound under cover of the usual daily mirage, and they subsequently took up new positions to the south and south-west of Shaibah. The gun-fire was then in the main directed either at the High Kiln, which was not hit during the whole of the action; or at the Fort, the troops near which were so well protected that no harm was done.

While these events were in progress General Fry had informed General Headquarters at Basrah that an attack on the post at Shaibah had begun, and that the garrison would not be able to afford protection to any convoys that might be sent with supplies by the route leading from Basrah to Zubair. As has already been stated General Nixon had decided on the 11th to despatch the three battalions of the 30th Brigade to Shaibah early on the 12th, and to visit the place himself, and the troops had marched to the Zubair gate of Basrah for this purpose. On reaching the gate it was found, however, that all the local boatmen had

MAP 2



disappeared leaving their *bellums* (punts) behind them, and that an advance in boats was therefore out of the question. At 8-15 A.M., when the noise of gun-fire from the direction of Shaibah had almost ceased, Sir John Nixon came to the conclusion that an attempt might be made to reach it by wading. He gave directions, therefore, that this Brigade and the 30th Mountain Battery, under Major-General Melliss, were to try and march over the swamp to Old Basrah and clear this road; and orders were sent by heliograph to Fry that his troops were to be prepared to cover this movement and to join hands with those of Melliss. Two hours later Fry, who, owing to the mirage, had experienced great difficulty in communicating with Basrah, expressed his inability to spare more than two battalions for this purpose, and also pointed out the danger of a disorderly movement across the marsh on Old Basrah * which was then in the possession of the enemy. Nixon now sent this information to Melliss, and also enquired whether the men of the 30th Brigade could move directly towards Shaibah. To this Melliss replied that, owing to the flood, his troops would not be able to do so, and that the men had now advanced for a distance of about two miles on the road to Old Basrah to a point where the water was already up to their knees. Nixon therefore first suspended the advance, and then, on hearing that the garrison of Shaibah was not in danger, recalled the troops at about 12-30 P.M. The retirement was uneventful, and Melliss finally reported himself to Nixon at the Zubair gate at 3-30 P.M. Every available *bellum* having in the meanwhile been impressed, Melliss was again despatched to Shaibah with a portion of the staff of the 6th Division and three companies of the 24th Punjabis in eighty *bellums*. But as the native boatmen obstinately refused to board their punts, these were paddled or poled by men of the 20th Punjabis who had previously been trained in this work. The somewhat hazardous voyage, during the latter part of which the men had to push the *bellums* through shallow water when nearing Shaibah, was safely concluded at 8-30 P.M. by Melliss; but the last of the *bellums*, most of which came under the enemy's fire as they neared the front, did not reach it until nearly 11 P.M.

Early in the afternoon, at about 1-30 P.M., thirty enemy *mahailas* (barges) had attempted to sail into the area between

* The depth of the water on the area that was inundated varied from one foot to three feet or more, according to the direction from which the wind was blowing and according as the ground was quite level or slightly undulating. The bottom was sticky and greasy and was covered with rubbish in places; to wade through the water was, in consequence, a slow and exhausting process, and infantry soon strung out and lost order and cohesion when doing so.

Shaibah and Basrah, perhaps with the intention of cutting the line of communication between the two places; but coming under artillery fire from both the boats sailed off in a north-westerly direction. The Turko-Arabs, who had taken advantage of broken ground and of the mirage to close on our lines, also resumed the attack on the southern and south-western defences shortly after 2 P.M.; and they advanced with such a show of energy that Fry was obliged to send forward the companies of the Norfolks that formed part of his reserve in order to strengthen our resistance. The offensive, however, very soon ceased and had been definitely broken by 3 P.M., when the Turks and their allies fell back covered by gun fire from the south. At about this time marksmen, who had worked their way warily forward from the direction of Old Basrah, had begun to fire into the eastern face of the camp; but they were dispersed by a well-timed charge that was resolutely delivered from Picquet Hill by a squadron of the 7th Lancers, with the support of "S" Battery Horse Artillery. At about 5 P.M. some Arabs fell away from the North Mound; but the Turks and Arabs as a whole were far from being beaten, and, after a long interlude of desultory rifle firing, and some registration of their guns between 4 P.M. and 6 P.M., a strong attack was delivered at 6-45 P.M. in the dusk, against the western and southern faces of the defences. No definite progress was made, and, in the end, the attack resolved itself into harrassing fire combined with attempts to cut our wire entanglements. These continued throughout the night, but met with little success, although star shell used by our mountain guns was not effective and our searchlight was put out by the enemies' sharpshooters. On the whole, therefore, the first phase of the action ended in a defeat for the Turks.

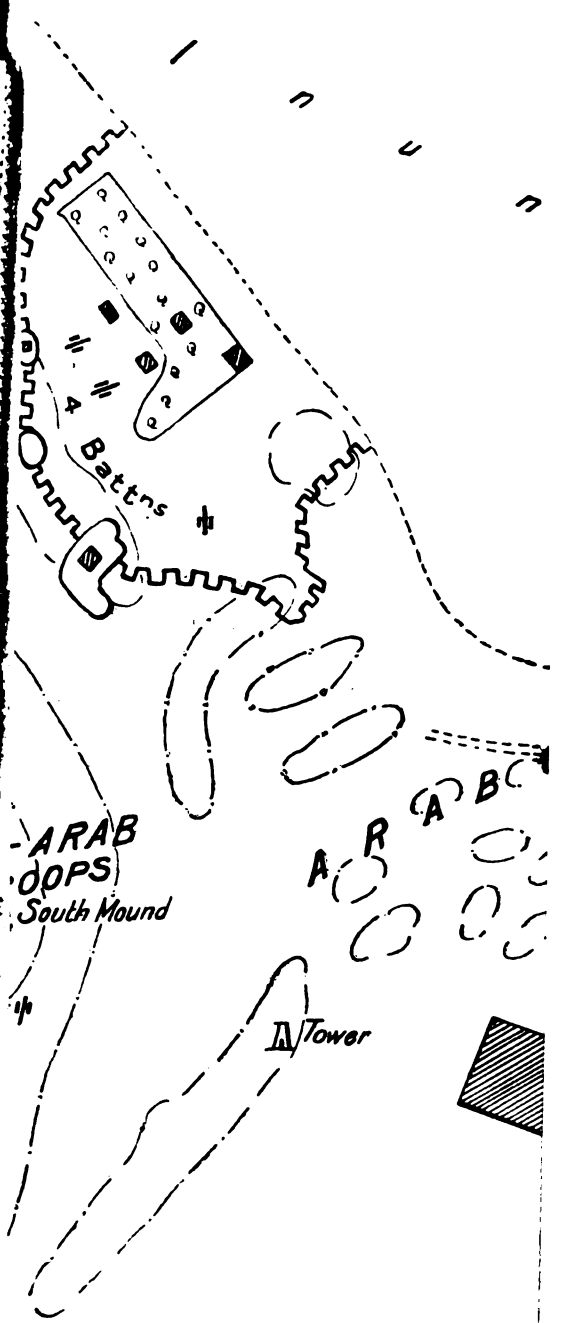
Major-General Melliss, who was senior in rank by two years to Major-General Fry, assumed the control over the operations of the British troops at 4-30 A.M. on the 13th April, with all the handicap, owing to his recent arrival in the country (on 6th April), of lack of acquaintance with the troops and knowledge of the ground; and also, in all probability, without a full perception of the very disconcerting and confusing effects produced by the mirage. Having ascertained that the losses of the British during the action had amounted only to 71 of all ranks, General Melliss visited the western front soon after daybreak, and later went to the northern front which was, he found, being engaged by a number of Arabs. The results of this inspection are said to have caused Melliss to form the opinion that the Turks, Kurds and Arabs were in greater force in the northern portion of the field, and in the area to the

south-west of the camp near the South Mound, where the bulk of the artillery had again seemingly been placed. It appeared, then that in their anxiety to envelop the British force and to sever connection between Shaibah and Basrah, the front of the enemy had been rashly extended into the peninsula which had been formed between Shaibah and Chuwaibdah by the floods; and Melliss was aware that the Turkish line of communication led along the edge of the inundated area, over the dry but soft and almost spongy plain, towards Nakhilah. A number of alternative courses of action, therefore, were open to the British, and although as is always the case no one of them was without drawbacks, several held out the promise of important results should the British win a tactical success. In the first place General Melliss might attempt to hold fast the enemy's left and at the same time to drive the remainder southwards away from their line of communication and also to re-open his own, and if he were successful the Turkish army would probably be forced to disintegrate. On the other hand the mobility of the Turks and Arabs was relatively much higher than that of the British, who were also tied to Shaibah by lack of transport, and the latter in consequence would not find it easy definitely to push the enemy away from their line of supply. Since there was but little space in which the left and left centre of the enemy's forces could manœuvre, and the bulk of their artillery was far away, it appeared also as if advantage might be taken of this weakness to isolate the left wing. But although a successful advance westwards might result in the separation of the left of the Turko-Arab army from the remainder, this would involve a frontal attack on the Turkish centre which, although now not strongly held, had been occupied by their best troops; and in the process of trying to break the centre the British might be enveloped by the enemy's powerful wings. Further, water for the attacking troops would not be obtainable in this direction. There were still, however, other possibilities, and one of these was that of outflanking with our cavalry the left of the Turko-Arab position at the North Mound. If this could be effected, the troops in the peninsula might be subjected to that deadly form of attack an advance from two directions, and therefore placed in a disadvantageous situation. At the same time the enemy's centre, behind which two guns seemed still to have been left in position, could probably be prevented by our fire from rendering effective assistance to the left. Or the British might outflank the enemy's right, attack this wing from two directions and, if successful, clear their own communications.

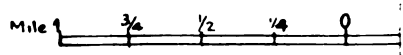
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If the primary object of this sortie was to gain information as to the strength and resisting power of the Arabs, this purpose was quickly effected. Two guns of "S" Battery came into action in the north-eastern portion of the enclosure, and immediately afterwards the cavalry trotted out along the edge of the marsh headed by the 7th Lancers, while the 104th advanced against house C. which was nearest to the perimeter. After moving a short distance the 7th Lancers came under a strong enfilading fire from the plantation lying to the north-east of House C., and as they went on under frontal fire from the direction of the North Mound also. A charge was now gallantly delivered by the leading squadron against the nearest of the enemy, but the mounted men could not reach the majority of the Arabs and Kurds who were in trenches, behind walls or in the plantation. Although a few of the Lancers gained the Mound, the rest therefore were obliged to fall back on the remainder of the Brigade which had not continued to advance. Being without efficient support from artillery the 104th also had been unable to carry house C. .

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to doubts as to the exact position of the two guns which eventually were captured by the 24th and brought into camp by the cavalry. Meanwhile a good deal of resistance had been encountered by the 104th who were obliged to assault a series of trenches and who captured 150 prisoners in the course of the fighting. By 2-30 P.M., however, the vicinity of the western face of the camp had been cleared of Turks and Arabs, and the cavalry had been able to make one or more successful charges on a number of the enemy as they left the field, and to pick up stragglers who were exhausted by the long march that had been made and by the lack of water. Some men who had earlier in the battle pushed forward towards the Fort, and who had then found themselves pinned down by our sharp-shooters to the ground that they were holding, also moved into our lines and 7 officers and 112 others surrendered to the 18th Infantry Brigade. (Map 3.)

General Delamain now halted his force, as it was necessary to replenish the ammunition, for Turks and Arabs were seen to be massing round the South Mound and their guns were still intermittently shelling Shaibah. On receiving a report to this effect, together with a statement that the infantry were somewhat exhausted by the intense heat and their exertions, General Melliss was confronted with one of the usual dilemmas of war. It is stated in the Field Service Regulations that: "Success must be followed up until the enemy's power is ruined," and that "the advance of the attacking troops must be continued to the limits of endurance;" and if victories could be won by following wise principles without taking thought in regard to their application, the task of leadership would indeed be easy. But Melliss had actually to consider whether in the three hours that were available before darkness closed on his troops, tired men could reasonably be expected to replenish ammunition, then advance for about two miles over open ground and finally carry a position; for time was not available in which to relieve the men that were under Delamain by those who had remained in Shaibah. And it must have been clear that, if Delamain's small force failed to win the South Mound before nightfall, the troops might have found themselves closely engaged in a waterless country and in the darkness, with greatly superior numbers of men who had not been exhausted by a long day's fighting under a parching sun, and who were also accustomed to move about freely at night; and, in these circumstances, the advantages which were possessed by the British in leadership,

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discipline and organisation would largely have been discounted. General Melliss decided that it was too late in the day for further operations. Orders consequently were issued at 3 P.M. that the action was to be discontinued, and the troops, observing all due caution, returned to Shaibah, which the last of them reached without being molested at about 6 P.M. It was then estimated that there were still 10,000 Turks with 6 guns in the field, and that a number of men who had not been in action were near Old Basrah.

It may be presumed that General Nixon was well informed as to the events which took place during the day at Shaibah. It may be inferred, therefore, that reports in regard to the presence of large bodies of the enemy at Old Basrah, combined with information in respect of the experiences of the 24th Punjabis on the evening of the 12th, prevented him from causing strong attempts to be made to bring either reinforcements or supplies to the garrison; for convoys that were sent out, on the 13th had been turned back by hostile Arabs.

The night of the 13-14th April passed quietly, but soon after dawn General Melliss was able to observe in the clear morning atmosphere that, while the north and west fronts had been quitted by the enemy, bodies of troops were still visible in the vicinity of the South Mound; although, whether these were units holding the left of a position which extended from the Mound to Old Basrah, or were outposts that had been thrown out by a force occupying a line of entrenchments further to the west, or were rear guards placed in position for the purpose of covering the withdrawal of the remainder, was still to be proved; for there were also indications that the enemy might be moving away from Barjisiyah Wood in a north-westerly direction. (Map 4.) General Melliss was without airmen, or aeroplanes, who could at once have cleared up the situation; and perhaps in view of previous experience during the campaign of their Scythian tactics, and of the fact that so large a number of Arabs were on the field, it was considered that cavalry unless supported by infantry, would be unable to ascertain what actually were the dispositions of the Turks. It was necessary, therefore, and it is not unlikely that similar situations will occur in the campaigns of the future, for General Melliss to try and infer the probable from the apparent, or, as the Duke of Wellington remarked, endeavour to guess what might be met beyond the next hill or round the next corner.

Victory solves all the problems of the moment in time of war, although others, of course, crowd forward on its heels, and whether the Turks were holding a position, or whether they were in the act of retiring, to have attacked and beaten them would obviously have been the wisest course. But a force cannot fight and go on doing so unless food and ammunition can freely be brought to the troops. No one moreover can ever forecast quite accurately the duration of a battle, and in consequence the quantity of food and munitions that will be expended before its conclusion. A careful leader may therefore hesitate to fight before he has cleared all enemy troops away from the communications of the force, and may prefer first to do this rather than to attempt to effect every immediate purpose at once by defeating the enemy. Whatever decision was made in this instance, it seems, however, that it should have both been made and carried out quickly ; for if the enemy were in retreat it was clearly essential to strike an immediate blow, and equally time must not be given to them in which strongly to entrench a position.

After weighing these, and no doubt other factors also, it seems that General Melliss now resolved, as a preliminary measure, to move out of the camp with the bulk of his force and gain the South Mound whence reconnaissance could be carried out. Having placed a detachment there so as to secure his right, he would, subject to such developments as might in the meanwhile have taken place, then proceed to clear the enemy away from Zubair and Old Basrah, if these were still occupied by the Turks, so as to enable food, ammunition and reinforcements to be despatched from Basrah to Shaibah. The subsequent movements of the British would necessarily depend on the nature of the information and fighting that had in the meanwhile been obtained or taken place.

At about 6-45 A.M., therefore, orders were given that the whole of the force, with the exception of the 48th, the 104th, two guns of the 76th Field Battery, one gun of the 63rd Field Battery and two guns of the Horse Artillery, a detachment which would be sufficient to secure the camp against an offensive from the direction of Old Basrah and Zubair, was to be prepared to make an advance, but not until 9 A.M.

These troops, six and three-quarters battalions, eight squadrons, two companies of Sappers and Miners and 18 guns, numbering about 6,000 fighting men, duly formed up at about 8-30 A.M. to

the south-west of the Fort; each man carrying a water bottle, a ration in his haversack, and the infantry had 200 rounds of small arms ammunition on the man and in addition there were 100 rounds per rifle on the pack animals. The battalions moved off in lines of columns between 9 A.M. and 9-30 A.M. A group composed of the 16th Infantry 3 Brigade, the 23rd Mountain Battery and the 22nd Company of Sappers and Miners led the way, the centre being directed on a point lying about a quarter of a mile to the west of the South Mound. The 24th Punjabis and the 2nd Dorsets were in the first line of the 16th Brigade, the former being on the right, then came the 119th and the 117th, and behind the 119th was the 23rd Mountain Battery, the 22nd Sappers and Miners following the 117th. In echelon behind the left of the 16th Brigade group, and so placed as to be ready at once to meet an attack from the direction of Old Basrah, came the three battalions of the 18th Infantry Brigade, the 110th leading, the 120th in echelon behind their left, the Norfolks to the left rear of the 120th and then the 17th Company of Sappers and Miners which was attached to the brigade. Half a squadron watched the left flank of the force, the rest of the Cavalry Brigade had been pushed out to the right front and flank, and the field guns and Headquarters of the 6th Division marched behind the centre.

The advance over the dusty, heavy surface of the plain took place under an ineffective rifle fire delivered at long range by mounted men who were hovering round the South Mound. These were gradually driven back by the Cavalry Brigade with the assistance of some gun fire. But when the higher ground had been cleared, and the cavalry had reached the area midway between the South Mound and the High Tower, it was seen that a number of infantry were advancing from Barjisiyah Wood; and these troops, as it seems, either occupied trenches that had been roughly excavated or began then to dig themselves in on the backward slope of the undulation. At the same time a force of Arabs began to circle round towards our right flank. The Turkish infantry, however, did not move over the top of the hill, and the South Mound, therefore, was occupied at about 10 A.M. by the 16th Infantry Brigade, which then threw up some entrenchments. The Headquarters of the Division reached the Mound half an hour later. (Map 5.)

It seems that General Melliss inferred from the information that was now at his disposal that Old Basrah and Zubair were occupied only by small bodies of Arabs, and that the main

force of the enemy was probably holding a position near to Barjisiyah Wood. He gave orders, therefore, that the 16th Brigade was to be prepared to advance directing its left to the north of the High Tower, and that the two rearward battalions of the 18th Brigade were to march across to the right of the 16th Brigade. The infantry, in consequence, would be in echelon from the centre, and therefore in a formation from which an attack in front or on either flank could readily be met. While the redistribution was being made he, however, rode forward to the cavalry, who were on slightly higher ground, for the purpose of making a personal reconnaissance; and although it was now most difficult to see what was in progress, both on account of the mirage and of the shape of the ground, it appears that General Melliss came to the conclusion that the Turks intended to fight and that the right of their line lay to the west of the High Tower. The position of the left was still uncertain, but in spite of the fact that numbers of Arabs were visible both to the north and south of the British force, it was thought that the line did not extend in a northerly direction as far as the flooded area; although if the Turks and Arabs were really standing to offer battle it would be reasonable to suppose that steps would be taken by them securely to cover their communications with Nakhilah. The situation, then, was as yet far from being well defined, and it was still not impossible that the enemy's troops near Barjisiyah were merely a strong rear guard.

The Field Service Regulations point out that, "As a rule the information gained by his advanced troops, combined with the information obtained from the air and other sources, will enable the commander of a force to review the general situation and to decide whether to gain time and thus avoid an immediate engagement, or to attack the enemy, or to await attack." But General Melliss, as is not infrequently the case in time of war, had now in fact to decide on unreliable data whether to proceed with daring or to act with caution; that is to say whether prudently to engage the enemy with a portion of the force with the object of obtaining more accurate information, or whether at once to decide on an audacious plan of combined action; and his resolve must be made forthwith without the possibility of reflection. In favour of a daring policy there was the desirability of exploiting fully the success that had been gained on the 13th April, and Melliss naturally would not wish so to act that it would turn out that his troops had been tamely checked by a rear guard. Also, it is laid down in the Field Service

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Regulations that when "very little information" is available on which to base a plan, a commander "must act boldly with energy and rapidity, remembering that it is better to carry through a sound and simple plan than to lose an opportunity by waiting for further information which may never arrive." And time now was of vital importance to General Melliss, for the troops were engaged only in a sortie from the position at Shaibah, which could not be continued for more than a few hours, even if water were sent out to the British from the camp. He must therefore make the most of the remaining hours of the day. On the other hand the smallest repulse might bring the mob of Arabs like vultures on the British, and as it is well known that in the hour of victory every peasant becomes a soldier, the Arab levies might then be really formidable.

If the problem by which General Melliss was faced were set in an examination, or were put before an audience during a lecture, many no doubt would agree that, in such circumstances, a cautious policy, that is a struggle for more information would have been judicious; and that the British commander would have been well advised had he held the bulk of his infantry in hand while feeling with the remainder for the enemy's position. But if those who would have adopted this plan believe that they would necessarily be as wise if confronted in time of war with such a crisis, they may well be accused of having formed an opinion of their own abilities which is as favourable as it is false. When on the field of battle everyone, even the bravest of the brave, is susceptible to emotion, and when under its influence wills are impulsive and judgments precipitate. This is a fact that must never be forgotten by those who find that it is easy to form correct opinions in the light of subsequent events, and when the disturbing elements are not present that in war are at hand to warp judgment.

On the spur of the moment General Melliss decided to push on with his whole force. His plan, apparently, was first to engage the enemy's right and centre, that is the troops standing to the west of the High Tower with the 16th Brigade; and he would then drive in their left with the 18th Brigade and the Cavalry Brigade, and in doing so would endeavour to push the Turks away from their line of communication with Nakhailah. Orders, therefore, were given that the whole of the 18th Brigade was to move across on to the right of the 16th Brigade, and that the left of the latter was to be directed on the High Tower.

While this redistribution was being made the enemy's artillery opened an ineffective fire on the South Mound. Our cavalry, who were protecting the right of the force, checked an attempt by Arab horsemen to advance from the northern end of Barjisiyah Wood, and they also now observed that a long column, apparently of transport, was moving northwards from the direction of the wood. It seems that at this juncture information reached General Melliss which caused him to believe that the front of the enemy's position extended in a northerly direction for a distance of three miles and as far as the northern end of Barjisiyah Wood, and in consequence the two leading battalions of the 18th Brigade, now the 2nd Norfolks and the 120th, were ordered to move up into line with the front of the 16th Brigade; but these units had not actually been able to reach this alignment when the general advance commenced. (Map 6.)

The 16th Brigade group began to go forward shortly after 11-30 A.M., marching in a south-westerly direction along the sandy open and slightly undulating incline, the left being directed on the High Tower. The group was in the same order as before, except that the 23rd Mountain Battery had been withdrawn from it and had come under the orders of the commander of the artillery of the division, while the four guns of the 76th Battery were following the Dorsets. The frontage also was limited to 800 yards for the group and 400 yards for a battalion. For a distance of about half a mile the troops were exposed to an ineffectual fire at long range from guns and rifles, and at this period the Norfolk battalion was somewhat behind the right of the leading units of the 16th Brigade, and the 120th were in echelon behind the right of the Norfolks. When the infantry had reached the ground that was being held by our cavalry, the latter moved away, some of them through the columns of the infantry, to the right, to a point about one and a half miles to the north-east of the northern end of Barjisiyah Wood; and here the horsemen were brought to a halt by rifle fire from a trench or dry water course that could not be located.

During the subsequent advance of the infantry some mounted Arabs showed themselves on our left, and one company of the 117th were therefore detailed to secure this flank. Verbal instructions were also issued from Headquarters to Brigadiers, who were directed to warn their leading battalions not to become closely engaged without definite orders. But soon after noon, just when this order reached the troops, the Dorsets and 24th suddenly came under strong fire from rifles and machine guns as

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they were marching over the top of a rise and were approaching the High Tower ; the former were then about 900 yards and the latter about 600 yards from the enemy, as the Turkish line was at an angle to the direction in which the troops were moving. At the same time the Norfolks and the 120th, who were about 1,200 yards from the 24th also found themselves under strong fire at even closer ranges from localities on their right. It seems the Norfolks inclined to the right with the object of facing the enemy, whose position extended along a general alignment from south to north, although on the left a group of trenches in the front line had been bent forwards so as partly to flank the remainder. At the same time the whole of our artillery came into action in support of the infantry. The gun fire of the Turks was again wild and ineffective, but at first casualties from their rifle fire were heavy amongst our leading battalions, as both infantry and artillery found difficulty in locating the Turkish entrenchments. Owing to the shape of the ground and to the fact that the trenches of the front line of the enemy's position were on the backward slope of the rise, the infantry were also obliged to sit, kneel and in some cases to stand up in order to fire on the enemy ; and even then the Turks could not be clearly distinguished owing to the shrubs and mirage. The British, on the other hand, were an easy target against the sky line for the fire of the troops that were holding the second line of trenches which were five or six hundred yards further down the slope of the hill, and in addition were well screened among the small shrubs and by the fact that the Barjisayah Wood lay behind them.

In spite of every disadvantage the Norfolks and 120th managed at first to gain some ground, but at 1-30 P.M. they were definitely checked by a well maintained fire from both rifles and machine guns. The leading companies of the Dorsets and 24th, having absorbed their supports, had also succeeded in creeping forward to positions from which the enemy could be engaged when the British were lying down, but, as has been stated above, there was a considerable interval between the men of the 18th and 16th Brigades. With a view of closing this gap and also of assisting the Norfolks and 120th, General Melliss now sent orders that Delamain was to direct his troops to bring up their left shoulders and advance towards the northern end of the Barjisayah Wood. Delamain, however, was obliged to point out that to do so would involve the making of a change in the direction in which the troops were facing at a time when they were closely engaged with the enemy ; but he sent instructions that the 22nd Company

of Sappers and Miners, two companies of the 117th, and two companies of the 119th were to advance, prolong the right of the 16th Brigade and get into touch with the Norfolks. The companies of the 119th lost direction as they went forward and in the end reinforced the Dorsets. But this, as it happened, was not disadvantageous, for the left of the firing line was able to advance beyond the High Tower to within 400 yards of enemy's front line, and the Tower could be used as a forward observing post by the 76th Battery. The Cavalry Brigade, meanwhile, had attempted to get round the Turkish left, but had met with Arab horsemen in considerable strength, who were supported by artillery, near the old wells that were in the water course to the north of Barjisiyah Wood; and it was found that a wider movement so as to avoid the fire of the enemy's guns was not practicable owing to the inundations.

At about 1 P.M. General Fry put two companies of the 110th into the action on the right of the 18th Brigade. The 63rd Field Battery and 23rd Mountain Battery also moved forward so as both more closely to support the infantry and more effectively to engage the Turkish artillery, and the gunners did not halt until they were within half a mile of the enemy's trenches. (Map 7.)

Soon afterwards the remainder of the 110th, followed by the 17th Company of Sappers and Miners, were thrust into the action on the British right, but owing to enfilading fire no progress was made in this part of the field. Melliss, therefore, sent orders at 2-30 P.M. that the 23rd Mountain Battery was to move from the centre to ground where close support could be given to the 110th. The Cavalry Brigade had now returned to its original position on the ground to the north-east of Barjisiyah Wood, and was about 1,200 yards away from the right of the infantry, covered by some squadrons who had dismounted and were engaged in a fire action, and General Kennedy also received instructions to co-operate closely with the 110th.

As a result of these movements, a determined fight began at close range along the whole line of our infantry, who were well backed by the gunners. In spite of large expenditure of ammunition, which in the case of the artillery was replenished by bringing reserves from Shaibah, little progress was made, however, for accurate gun-fire was still found not to be practicable owing both to the mirage and the concealment that was afforded to the enemy by the shrubs.

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Each reader, according to his personal experience, can picture to himself what was now passing in the minds of those who were responsible for the direction of the battle. The day was already waning, to remain in close contact with the enemy during the night night, as has already been pointed out in regard to the situation on the afternoon of the 13th April, involve disaster to the British, and to attempt to break off the battle would, to say the least, be most hazardous. To make a dangerous decision is always most difficult, and a great effort of will must have been required to enable General Melliss to resolve to go on, even although it is now easy enough to write that there was no other alternative. At 3 P.M., then he called upon his troops for a fresh effort, but a warning was sent to Shaibah, whence water was already being brought for the men, that transport carts were to be prepared to move out on to the field for the purpose of carrying away the wounded.

In order better to assist the 15th Brigade which had asked for still closer support from the gunners, the 76th Battery now came into action near the High Tower. Delamain also sent into the firing line another company of the 117th and half a company of the 119th, the other half being used to escort the guns, keeping in hand only one company of the 119th; and as a result ground was once more gained. By pushing an observing officer forward into the firing line of the Norfolks the commander of the 63rd Battery was similarly able to give more adequate assistance to this battalion. But a decisive effect was not produced and in the meanwhile night was rapidly drawing nearer.

In addition to all his other cares and responsibilities, General Melliss was now also involved in what was a desperate conflict, as severe in its own way as the physical conflict between the troops, of will and character against Sulaiman Askari. And at 4 P.M. he was obliged to yield a point to his opponent for in order to prepare for the worst, instructions were then issued that the 48th Pioneers were to escort from Shaibah all the available transport carts for the carriage of the wounded. At about the same time the Brigadiers were warned that if the enemy's trenches had not been carried by 5-30 P.M. the force must fall back to Shaibah.

Between 4 P.M. and 4-30 P.M. this cruel anxiety was at last relieved, the action took a turn definitely in favour of the British, and the Turkish guns ceased firing, for it was Sulaiman Askari's resolution that had weakened. Even the most resolute infantry

are dashed in spirits when their guns cease firing, and apart from this the plight of the men in the forward trenches of the Turkish force was now serious. Throughout the day the fire of the British artillery and infantry had prevented any reinforcements that the enemy may have wished to throw into the battle, from making their way up the open slope into the shallow trenches of the front lines, and the occupants of these had suffered losses which had not been replaced. The moment therefore was critical. Sometimes in a battle a drive forward is initiated by the leader of the force who sends in fresh troops to turn the balance of a doubtful fight; sometimes an appeal, or a command, that is issued by the general will give an onward feeling to men who are hesitating whether an attempt to close with the enemy can be made, and in this way a change is worked in the fortunes of the action; at other times the troops who are in front suddenly become aware of the fact that the resistance of the enemy is being overcome. Some such thoughts now sprang up in the minds of the officers and men of the British firing line, and the Norfolks boldly put the matter to the test by dashing forward. With the 120th in close support the first line of the trenches was soon carried at the point of the bayonet, and a portion of their garrison, who were found to be Turkish soldiers, were made prisoners. Almost simultaneously the troops on the left felt the same impulse, and led by the Dorsets the men of the 16th Brigade also charged home capturing the trenches of the first line and securing a number of the enemy. The Turkish front line therefore had been gained at about 5 P.M. (Map 8.)

The battle, however, seemed as yet only to be half won, and the difficult, but very pressing, question must have arisen in many tired minds, what was now to be done. Their success had probably secured for the British the power of collecting the wounded, an essential service for to have left these on the field would have been to have condemned them to death at the hands of the cruel Arabs, and then retiring to Shaibah; and the problem was whether to be content with this small achievement, or to risk all in continuing the attack. It is justly laid down in the Field Service Regulations that: "If, at any period of the battle the enemy is able to take up a new position in a rear system of defence.....The new position should be carried whenever possible by a vigorous continuance of the initial attack, for delay in its capture will involve increased cost".....and that, "success must be followed up until the enemy's power is ruined." But the sun was now hurrying to the west, and the British troops

were weary, parched with thirst and not well provided with ammunition. It is admitted of course that, if Cæsar had halted because his soldiers were tired, Pharsalia would not have been a decisive victory. On the other hand the disaster that was experienced in this very country of Mesopotamia by the Byzantines at Manzikert, show how dangerous is the situation when tired troops have tried, but failed, to give the decisive stroke to a volatile enemy. It is plain, then, that in circumstances such as these, a well-poised and highly trained mind can alone weigh in equal balance all the many factors and then decide when the troops can advantageously be asked again to go on, and when it will be judicious to pause; for rashness is far from being the same as reasoned daring.

In this case, however, no great resolve was required, for the Turks and Arabs who were holding the second line suddenly put up the white flag. Then, following those from a camp in the Barjisiyah wood, they abandoned the position and hurried away in disordered masses offering a target of which our guns, owing to shortage of ammunition, were unfortunately not able to take full advantage. At the moment the British were at a loss to account for this panic, although a somewhat similar flight on the part of the Arabs had ended the first important action of the campaign at Sahil, on the 17th November 1914. According to some accounts the panic may be ascribed to the fact that the less stable elements of the enemy's army saw the 48th advancing from Shaibah, followed by long lines which in the mirage were mistaken for reinforcements that had been sent from Basrah to the front. But the Official Historian observes that: "There is nothing whatever in our own records, nor in the Turkish accounts of the battle, to suggest that there is any truth in" this statement.

Prolonged pursuit by the British infantry would, in any case, have been out of the question, for the troops were short of ammunition, and, as has been stated, had been exhausted by the great heat of the day, and by the long strain of an advance over absolutely open ground against a position that had both been chosen with skill and stubbornly defended. Melliss, as has been mentioned, had also already issued orders at 4 P.M. that, unless the position had then been won, the withdrawal was to commence at 5-30 P.M. covered by the cavalry, the 48th Pioneers occupying a position at the South Mound for the purpose of protecting the movements of the remainder. As a result the cavalry were not so placed that they could harass the defeated troops; for the 7th Lancers, the

32 *The Battle of Shaibah, 12th, 13th and 14th April 1915.*

33rd and two guns had already been withdrawn from the action and were moving over to the left flank, and the 16th had just broken off dismounted action and were returning to their horses.

The order to fall back was allowed to stand, but some units of the infantry had already begun to advance before it reached them, while others had busied themselves with the collection of the wounded. The retirement, therefore, did not begin until about 6 P.M., that is half an hour before sunset. It was quite unmolested, but night had fallen before the leading units reached Shaibah at 7-30 P.M., and the last of the troops did not report their arrival in camp until one and a half hours later.

The casualties of the British in the three days' fighting amounted to some 1,300 out of about 7,500 fighting men who were engaged in all, and 6,000 who fought at Barjisiyah; and of these 65 were British officers. Two hundred of all ranks were killed, and of the total of the losses 1,062 were experienced on the 14th April. It was estimated by General Melliss that 15,000 of the enemy were in action on the 14th; of whom 4,000 were regular infantry, and that the Turks used 6 guns. According to the Turkish account 7,000 regulars fought in the battle with 21 guns, and there were in addition 18,000 Arabs, 3,700 of whom were mounted. The losses of the Turks and Arabs were at first placed at from 1,500 to 2,000, but as reports came in of the demoralisation of the enemy the magnitude of the success began more clearly to be realised, and these estimates were raised to 6,000, a figure which included the deserters. In addition some 750 prisoners, 2 guns, 2 machine guns and 450 rifles were taken, as well as a quantity of munitions and of food.

Shaibah, which established the superiority of the British over the Turks and Arabs as fighting men, was generously called by General Melliss a "soldiers' battle," that is a battle in which success was obtained mainly by hard pounding. It is not clear whether the Turks intended to fight a battle on the 14th, or whether they became so deeply involved in a rear guard action as to be unable to break it off when they desired to do so; but apparently a definite plan of action had not been made for that day. The Turkish troops did not belie their reputation as tough fighters when entrenched and subjected to a straightforward attack, and it may be said that they reaped all the advantages and suffered all the drawbacks which much maligned theory had previously assigned to the position on a backward slope. The trenches were so placed as to be concealed from distant observation, the tiers of

trenches and gun pits allowed of the delivery of a great volume of fire on attacking infantry as they descended the incline; and, either by accident or design, the rearward position had been sited at such a distance from Barjisayah Wood, which formed a favourable background, that these entrenchments could not easily be located. The Turkish infantry were able to reserve their fire until the British had advanced so far that manœuvre to a flank was no longer possible. And then it became merely a question as to whether the individual skill and tenacity of the British would triumph over the obstinacy of the Turks. As the attack progressed, and the ground behind the enemy's front line was swept with fire, its reinforcement became impracticable. The Turkish and Arab soldiers, and also the Arab auxiliaries who hovered round ready to assist in reaping the results of victory but unwilling to strike hard for its achievement, were consequently beaten in detail. Sulaiman Askari, indeed, who committed suicide after the battle, did so, after making an address to the Turkish officers in which he complained bitterly of the conduct of the Arab tribesmen. These, it may be pointed out, actually went further and treacherously attacked the retreating Turks on whose side they had been fighting. The late hour at which the attack was made by the British was all in favour of the defender, having regard to the well known difficulty of getting rapidly to close quarters under modern conditions. But the English infantry and the artillery did not lose their forward impulse even when the issue of the day appeared to be in doubt, and the Indian units contributed their share to the victory by gallantly seconding their English comrades.

COST ACCOUNTING—I.

A lecture, by Lieut.-Col. R. Prince, O.B.E.

Introduction.—This lecture contains the personal views of the lecturer and does not necessarily possess any other authority whatever.

It was given with the special object of emphasising the difference between Cost and Expenditure and with the further object of showing how the present accounts showed the cost of the Army for the year. The main difference between Cost and Expenditure in the Army accounts, lies in the difference between the purchase and the condemnation of stores held. Such comparatively rare and unimportant matters as capitalisation of certain Army expenditure, does not come within the parview of the ordinary staff or regimental officer, and consequently, for the sake of brevity and clarity, all reference to these less important items have been omitted. The lecturer also considered that much of the present criticisms of the cost accounts is due to the fact that their mechanism is not generally known, and that the results frequently cannot be read after the accounts have been completed. It is this knowledge which he endeavoured to supply.

Before I commence the lecture proper, I would like to detail the plan I have adopted in dealing with this subject. I found that, in order to explain these accounts so as to give a clear grasp of their object, it was necessary to begin a long way back and to define the meaning of a few words which are constantly used in connection with them.

A very authoritative committee has recently sat in England and considered the whole subject (the Lawrence Committee). I therefore commence by summarizing one of their principal findings. I then proceed to define the meaning of certain terms used—then stop for questions—then I endeavour to outline the general idea of the accounts—stop for more questions—and then I try to show their principal immediate uses to everyone from G. O. C-in-C Commands downwards. According to the Lawrence Committee, it is intended by these accounts to decentralise Army Headquarters

considerably, and consequently we must know how to use the accounts or else we would go wrong in this proposed transition stage of decentralization.

It is generally admitted that no system of administration can exist, which is regardless of monetary considerations. Money is the measurement of the means possessed, and administration consists in manipulating these means so as to arrive at the best possible result. Therefore the administrator must constantly watch the means he still possesses—in other words, he must be constantly watching the expenditure of his money. He cannot do this unless he watches the account of his money and understands the significance of the constantly changing figures. In the Army, financial advisers are appointed to each G. O. C. district and command, but unless the administrator watches his accounts and asks for advice on matters arising therefrom, the adviser is frequently at a loss to guess what warnings he ought to sound. It therefore appears that the administrator must watch and understand his accounts, and regulate his actions by the information they contain.

2. Now the present method of controlling expenditure at Headquarters by departments on an all-India basis, means that the account of the expenditure has to be collected from every unit in India and then consolidated. This means delay in the receipt of the accounts by the officer concerned, which greatly militates against their usefulness, and also it means excessive centralization at Headquarters. Equal power cannot exist in two places at once, and if authority is centralized at Headquarters, the powers of G. Os. C. are automatically reduced to a similar extent.

One of the principal reasons for introducing Cost Accounts into the army is to avoid this excessive centralization at headquarters. The Lawrence Committee issued a report on the subject in the spring of last year, and, so far, I have merely tried to summarize their argument which was based on the facts already noted; the arrangements in respect of financial advice and centralization of control at Headquarters are more or less similar in England and India. I will endeavour to explain these accounts to you and also show how they assist the administrator by enabling him to use economically the money at his disposal.

3. In the first place, what are accounts? Accounts are a true record of completed actions written down in terms of money. The record previously maintained in the accounts of the Army used to be only a record of the expenditure for the year. The present

Army accounts are the cost and expenditure record of the Army for the year. They contain all the expenditure which used to be shown and in addition they show the cost of the Army for the year. Now here we have the fundamental difference between the present cost accounts and the old expenditure accounts. The new Army budget shows the anticipated cost as well as the anticipated expenditure of the Army for the year, and, in the accounts, the cost of the Army is shown as well as the expenditure. It would seem that a very wise and useful attitude underlies this demand made upon the Army to show its cost year by year. It would appear that the old bad system under which the economy of a man's administration was judged by the money he spent rather than by the economic results he achieved, is to give way to the correct method of judging his work by its running costs and the financial condition in which he leaves it. I will return to this point later. But Government has probably been the most dilatory of the large concerns in realising that cash expenditure is a misleading guide, and that it is essential to know the cost of their current expenses.

4. The accounts now under consideration are cost accounts, they are not value accounts and they are not price accounts, so now we have to define Cost. Cost is the actual total sum, paid in money for an article or for a service. It has nothing whatever to do with value or price. These are three quite distinct things—Cost, Value and Price. In comparison with any ordinary business, the Army is of such an immense size, and it is required for such very special services, that the articles it uses are almost all of them, except certain foodstuffs, specialised for the particular work they have to perform. The result is that neither value nor price can be considered in respect of articles required for the Army. Now this question of the practical absence of value and price in respect of articles required in large numbers by a public service, but possessing no general usefulness, has been passed over in silence by everyone and yet it colours the whole question of costing a public service. In commercial costing you can check your cost, very often at several stages of manufacture, with the market value and you can value, at market rates, stocks carried forward. But in dealing with Army expenditure you have nothing of the sort to assist you. In fact, the costing of a public service is a distinct and separate study from the costing of a commercial concern, and I may add that there are no text-books on the subject and no principles laid down. The Lawrence Committee made no reference to this variation between the methods of costing for

public and for commercial concerns. In commerce you cost each year to a tangible result, a definite profit or loss, as against the price obtained for your goods or services. But in the Army, and so also would it be in the Police force, you simply cost down to a unit of cost, and you have no price or value with which to compare the cost; you simply watch whether that increases or not irrespective of the expenditure of the year.

5. Now the Army accounts, as we have already said, are an account of cost and expenditure. The expenditure of cash by the Army in any one year is, of course, quite different from the cost of the Army in that year, the reason being that stores are bought in one year, but are held on charge and used in the same or subsequent years. If then we introduce the question of value or price into these accounts, we will lose touch with the direct connection we are trying to obtain between cost and expenditure. I have already stressed the point that, in the great majority of cases, Army stores possess no value external to the Army, and no price which can be compared with the cost. Consequently, if we are really going to find the true cost of the units of the Army, we must never indulge in the easy method of valuation, but must hold to our actual cost right through from start to finish. The Cost Accounts of the Army then are designed to show in one account the amount expended by the Army in cash, and also the cost to the country of the maintenance of the Army for one year. We could, of course, obtain this result by maintaining two separate accounts—one of costs and the other of expenditure. But this would probably lead to extra work as compared with the maintenance of one account in the making of extra original entries, and it would also lead to the necessity of correlating the connected figures in the two accounts. The findings of the Lawrence Committee also agree in this view of the case and recommend the adoption in England of the single account. I do not think that our present form of account is incapable of improvement; there is a great deal yet to be done, but I hold the belief that the best accounts are worked out by accountants and improved and altered at the request of the man who is using them. I would consequently like the Army to learn and to use the accounts, and then say what further developments they require to enable them to watch the results of their administration.

6. Before I deal with the method of Army Cost Accounting, I would first remark that the foundation of all Cost Accounts is the double entry system. Now the double entry system does

not consist merely in making two entries for each transaction. It consists rather in recognising the dual nature of every transaction which occurs. For instance, consider the purchase of any article, I pay money to a shopkeeper. That is to say, I credit my own cash account and debit the shopkeeper. The shopkeeper hands me the goods. I credit the shopkeeper and debit my stock account. Thus you will see that the ordinary transaction entails four entries in the double entry system, and the whole object of the cost account system is to arrange these debits and credits so that they are of informative value to you in the ordinary course of your business. It is the proper arrangement of these four entries under appropriate heads which is the basis of Cost Accounting.

7. The previous accounts of the expenditure of the Army in India were arranged so as to show the amount of cash spent in each year by each service. The whole of the expenditure, for instance, on Ordnance stores or on S. and T. stores, was shown as being money which was spent by the Ordnance and the S. and T. respectively, but the stores they bought were required by the fighting services. The result was that the fighting services expended the stores and the Supplying Departments incurred the expenditure, and the expense of the maintenance of each of these Departments was not then shown as a thing apart from the expenditure of the stores for which they were custodians. Furthermore, the cost of the Army in one year was never known. Now the object of the Cost Accounts is to show the distributed cost of each service of the Army. Thus the value of the stores which are used up during each year by every unit in the Army is charged against that unit, as well as the amount of cash which is received in pay and allowances. But we also have to show the expenditure of the Army in the year as well as the cost of the Army. That is to say, we have to show how much we spend in purchasing stores during the year as well as the cost of the stores we consume during the year. For this purpose, we have to use Stores Suspense Account and in order to show you how this Suspense Account works, I will trace one transaction right through. But before doing this, we will consider the general Army account.

8. As you know, the account of the Army in India is divided into seven different heads on both the Receipt and Charge sides.

We have not got the time to deal with everything this afternoon, and I will dismiss all further reference to the Receipt side of the accounts by remarking that the Army is a spending department, and that the sums shown under Receipt heads are those

which do not affect the cost of the Army or its economic administration. I refer to such receipts as subscriptions to Family Pension funds. This statement is not quite accurate, but I think it contains a general truth sufficient for our purposes this afternoon.

The seven heads on the charge side show the cost of the Army under six different heads the other head being a Suspense Account.

Head I shows the cost of all the fighting services and of a few odd administrative services, *e.g.*, Brigade Supply units. The cost of each unit is definitely debited against that unit and units are grouped together according to their kind, British Cavalry, Indian Cavalry, British Infantry, Indian Infantry, Pioneers, etc. These are under Head I. Similarly under Heads II and III we find the cost of departments and educational and training staffs and of commands and staff. Heads V, VI and VII deal with special services, pensions, and other miscellaneous charges, not costable or not yet costed against units. Head IV is the Stock Account and it is here that our trouble begins, for stores bought in one year need not necessarily be consumed in the year of purchase, and yet we must keep an account of them between the dates of purchase and consumption. A stock suspense account is best illustrated by the old tale of the talents. You remember that one man was given a talent which he hid in a napkin and which was later required of him again. Now that talent was not his—it was required of him again—he was debited with it—and in accounts it would be debited to the Suspense Account. Again, in accounts, his trading account would be credited with any profit or debited with any loss which may have accrued—his stock account would be debited when it went in and credited when it was again produced and issued. There is a good deal of misconception on this point and it is a good thing to remember that all increase of the stock you hold is a debit against you, whereas profit is a credit to your trading account. The whole of this Head of account then is designed as a Suspense Account. It is divided into separate compartments from (a) to (k) according to the nature of the stores, and these compartments may be regarded as the true Stock Suspense Account. There is one other compartment, Head IV—L, which is Suspense Stock and Cash Account as well as a Stock transfer account and it is here that the change is effected from money paid to stores received. This all sounds rather difficult, but I hope that my example will make the matter clear.

9. Let us presume that the Controller of Contracts buys an article for the Ordnance Department which the Department issues

to a unit, which lasts the unit for 15 months and which the unit then condemns. When the Controller of Contracts makes the purchase, the first thing that happens in the Army Accounts is that the contractor is paid and a cheque is sent to him by the Controller of Military Accounts. This cheque is represented in the accounts by a credit to the Civil for the money which they have supplied to the Army and a corresponding debit to the Army Account under Head IV—L—Central Purchase. The stores are received in and accepted by an Arsenal, and a receipt voucher supports a credit to Head IV—L—Central Purchase and a debit to Head IV—H. "Receipts by Purchases," which is the account of the Army Stock of Ordnance stores. Having once been debited against this general Army stock of Ordnance stores—that is, having once been brought on to Army charge—it may pass to and fro between units and Arsenals many times in its life. It will do this by means of shuttle heads in the Stock and Cash Suspense Account (IV—L) which show "Reductions by and Additions by Transfers," but it will never leave the main stock head, the corresponding debit or credit to each such transaction will always appear in IV—H. It will then be clearly understood that both the Arsenal and the unit are operating on the same Stock Account, and that the operations which they each make on the same Stock Account are shown in their own individual accounts. There is no separate Stock Account—one for an Arsenal and one for unit. Stores on charge of all equipment ledgers appear in the same stock account. There is only one account showing the stocks held by the Army in India. Now later on, after a period of 15 months, we have supposed that these stores are condemned by the unit. Then the unit in this year's account will credit its Stock Account under the heading "Issues to Units and Establishments" and debit Head I—"Maintenance of Ordnance Equipment." In considering this case, it may be noted that the expenditure incurred during one year was shown in that year's account and that, when the stock was bought, a debit was raised against the Stock Account. That is to say, the value of the stock on hand was increased by the purchase, and this debit was never permanently removed from the Stock Account until, in the subsequent year, the unit condemned the store, and charged its cost off against the heading "Maintenance of Ordnance Equipment." Now, before I go any further, I will just run through that again omitting all details.

The contractor's bill is paid—Credit Civil.

Debit Central Purchases, Head IV—L.

The store is received in the Arsenal—Credit IV—L.

Debit IV—H which is
the Army stock of
Ordnance stores.

(*N.B.*—Here it may be issued and re-issued between
Arsenal and unit.)

The store is condemned in the unit—Credit IV—H.

Debit Head I—Main-
tenance of Ordnance
Equipment.

This is the final charge against the Army and goes to swell the cost of the Army during that year. It has been advanced to me in the lecture room that as we do not depreciate annually the articles in use in the Army, we do not obtain the true annual cost of the Army by this method. In reply, I must call to my help the exact science of mathematics, which possesses a theory called "The Theory of Probabilities." This theory may for our present purposes be stated shortly as follows :—"If one common source of error is multiplied sufficiently often, the result is the exact truth." Now we have in the Army at least 150,000 different ledger headings (there are 31,000 in the Ordnance Mobilisation reserves alone) and as our armament becomes more up-to-date these tend to increase greatly. The longest "life" is probably jack spurs, with 20 years of service, and nine-tenths of our stores last six years or less. When therefore we take into account the variations from the official life, it will be seen that the cost of the ascertained fact of actual condemnations, certainly gives us a far truer cost than any estimated depreciation, and depreciation is always an estimate. I would like to ask whether everybody fully understands this series of debits and credits and understands how the cost of the Army is obtained each year. If not, will they kindly ask any questions on this point.

9. I have shown you then how the expenditure of the year swings clear through the Suspense Account into the cost of the same or the subsequent year. You will notice that there is no attempt at valuation. Any attempt at valuation would merely introduce an eccentricity between the original expenditure and the ultimate value and we would lose the correct incidence of the original cost. We would, in fact, never get the real cost of any service or of any article, but only the value which would be estimated by some valuer and which really would convey very little information to us. These present cost accounts have rightly shut

the door on practically all valuations. There is still in the Military Farms a certain amount of valuation, but this is really used as a method of coping with the peculiarly irregular depreciation which occurs in these accounts.

10. An examination of the Budget Estimates for the year conducted in the light of the conclusions to which we have already arrived will show that it is composed of two sets of heads of accounts—the costing heads and the expenditure heads. I am speaking in general terms and referring only to general principles and trying not to make a difficult subject more difficult by dragging in exceptions. A great deal of misconception exists in respect of these several heads. I have seen several cases in which people have indicated cash savings in the year's expenditure under a cost head. I think all of us in this room will agree that there could for instance be no cash saving shown in respect of the expenditure of the year under the head—Maintenance of Ordnance Equipment. This is obvious, because no expenditure has been shown under that head. The only thing that has been shown under that head is cost. When then we turn to the Stock Account Head IV, the only place in which we can find any saving in expenditure will be under the Stock and Cash Suspense Account, Head IV-L-Purchase, i.e., Purchases in England or in India—Central or Local. All the rest of this account head is a Stock Suspense Account head and from its very nature no money saving can accrue.

It is clear then that under certain heads the expenditure for next year is budgetted and accounted, and that under other heads the cost for next year is budgetted and accounted for. Before we proceed any further, I will ask you to put any questions at this stage on points already dealt with.

11. We will now come to the question of rates on which the cost is based. It would be necessary to take this subject up entirely separately if it were intended to deal with it at all exhaustively, I cannot now enter into the interesting methods of fixing manufacturing rates. We can only consider the principles of Army rating. The general principle in fixing Army rates is that articles which are produced or purchased by a local Army agency and which are consumed locally receive local rates, e.g., fresh vegetables, meat, bread, firewood, etc. Articles which are normally produced or purchased by a central Army agency receive stock book rates. These local or stock book rates appear in the accounts when the article is first paid for in the Army stock suspense account. The whole object of good rating is to bring these local and stock book

rates as near to actual cost as possible. The reason for retaining local rates in the accounts is that, if you are purchasing simultaneously throughout India at different rates, and if you reduce these various rates to one flat rate, you at once introduce an unnecessary eccentricity into the accounts between costs shown and actual expenditure. This eccentricity is brought into considerable prominence by the fact that the stores locally rated are mostly perishable stores bought for immediate consumption within the district where they are purchased, and they can be easily and accurately rated by the local Controller—the result in fact is far more accurate and up to date than any result which could be obtained by central rating. All Army rates are worked out on very exact records of purchase costs with the addition of certain percentages in the case of central purchase stores. The percentages represent Government's expenditure in freight, handling, and storage, of the article, and are spread over stock book rates only, and they are checked from time to time to see that where possible they agree in total with the total expenditure incurred. I have recently checked the landing and freight percentage for Medical stores and found that the actuals were 9·8 per cent against a normal charge of 10 per cent. Local rates are fairly simple to deal with, but when we fix stock book rates, we have to keep our objective very clearly in view and we must always remember which cost it is that we are trying to obtain. Is it, for instance, the cost of a particular class of unit or the cost of maintaining a particular unit in a particular station? If we take any notice of the geographical distribution of the units of the Indian Army, we will be faced with a different rate for every station, and it will convey no particular information to us, because the distribution of these units is in accordance with strategical requirements rather than economic advantages. Furthermore, we have so far only been asked to state the cost of the fighting units of the Army as distributed in the peace area which they normally occupy. To state the cost station by station would be a heavy task which would not give a very useful result, as for administrative purposes, once having got our flat rate, we can always calculate relative costs between any one named station and another. This means that we omit all reference to the different rate of rail charges in the different stations and only take a flat percentage rate to cover the general rail charges of the Army. Incidentally this leads to simplification in accounting, and also, by always having the same rate for an article in every station, it enables us to calculate flat rates for allowances.

Of course, experience may show that in certain exceptional stations, *e.g.*, Fort Sandeman, Chitral and Gyantze, it may be as well to take special rates which would include the excessive cost of transit to these special stations, but I think, more probably, this will not become necessary, and that, if we merely keep special heads to enable us to watch exceptional transit and other charges in connection with such stations, this will be found to meet all the requirements of such cases.

There has been much criticism levelled against these rates and I believe that this criticism is to a great extent founded on a want of consideration of the actual object which these accounts endeavour to show, and also of the difference between value, price and cost, which distinction I tried to bring to your notice at the beginning of this lecture. I can assure you that rates are very carefully worked out and that the Controller of Contracts and the Ordnance and Clothing Directorate who deal with the bulk of the pricing frequently check these rates and are satisfied with the general accuracy of the rates which exist. As regards Medical Stores' rates, a new priced list is being very carefully prepared and should be published, I hope this year.

I may here point out that any attack on the Army rates which is based on the market value of the same or a similar article shows that the situation has not been quite clearly reviewed. If a private firm manufactures an article and while so doing obtains a by-product it will price the two articles in accordance with their respective value to the public, merely taking care that the two prices taken together cover their cost and give the necessary profit. Also private firms are prepared to cheapen one article if they can see a chance of a largely increased turnover or if they find that they can use it to push their wares and capture the market for a more remunerative article. In the Army we would merely get our costs wrong, if we altered our overhead costs on a particular article. There would be no real advantage in doing it. In the case of the Medical Stores, where we effect considerable sales, this rule acts harshly in certain cases, but we cannot put one rate down unless we put another one up, and we cannot push our wares and increase our market. But this is a very special case in respect of the one department in which we have considerable outside sales and it merits, and is receiving, special attention. But I trust that you now see why particular Army rates should never be compared with market prices—they are intended for two different purposes—the one is intended to allocate costs to various services

performed, and the other to ensure a general profit on total outturn, and this perhaps involves recouping a loss deliberately or perforce incurred in another direction.

12. It has been shown that these Army accounts exhibit both expenditure and cost, and, now that we are really getting results, it seems to me that the next thing to do is to get the connection between these two results into a form as useful to the administrative as possible, and it remains for them to ask for any further information which they find they require. Doubtless, it would be found in many cases that accounts could be altered to show particular results without extra labour being involved. When the accounts are found wanting, it is as well to formulate actual requirements or to state the particulars which are now unnecessarily given.

13. The present use to which these accounts can be put is to show the cost month by month under various account heads of each fighting unit. The cost of a unit in petrol, oil, and lubricants; ordnance stores; forage and provisions, etc., are all shown separately. In respect of some of these heads, the C.O. of a unit has at the present moment very great power. He can save Government a great deal of money under most heads. For example, take the ordnance head. When I tell you that Government has to replace each year about 60 heavy forges, you will realise that, even such an apparently indestructable article as this, at present becomes unserviceable fairly frequently. Again, the total figures show that every single Hurricane Lamp belonging to the Army is replaced each year; Private Hurricane Lamps last longer than that. But an examination of a unit's accounts will show what considerable economies can be effected in this respect. In the case of petrol, oil and lubricants and also forage, these accounts now give a C. O. a handy barometer by which he can be warned when waste is occurring, and, by a mere glance at the total figure between any two dates, he can see whether or not it is necessary for him to make detailed enquiries into the stores consumed during any period. This surely is a great saving of labour for a C. O. If his figures are down, he knows that, within reason, he need not worry. If they are up, he can see very easily in which month's account they went up and he can make his enquiry within quite narrow limits and obtain very quick results. Balances on hand are also shown and a wise C. O. minimizes his responsibilities by keeping his stock as low as he can in accordance with his requirements. I admit that the figures in respect of pay are not of great use to him; nor

the figures in respect of provisions, in which case there is a definite scale of daily issue, but, in both these cases, by watching his monthly totals, and noting for his own satisfaction any considerable variations and the cost thereof between one month and the next, he can prevent a swindle of any magnitude being perpetrated undetected in his unit. This is the way a business firm works. They watch rates and expect variations and if other than these variations occur they want to know the reason.

There is a great deal talked about scales, but scales are by no means universal in the Army. For instance, in the whole wide range of ordnance and barrack stores, scales practically do not exist for maintenance purposes. When a store is unserviceable, it is replaced and, although only a certain number according to scale is on charge at one time, they are replaced when they are unserviceable, and there is a very slight hold over the period of wear, and it is only in rare cases that careless handling can be proved. There is, therefore, here a very considerable field in which cost accounts can even now prove their usefulness. I think now I have shown that each total in the Cost Account of a fighting unit is of some use or another to a C. O. If he is wisely satisfied that the figure which goes to audit is reasonable, he can feel safe in the assurance that nothing untoward is happening in his unit.

14. Similarly, the same figures can be of use to Brigades and Districts. The G. O. C. can always find out the unit in his Command which is consuming the largest quantity, say, of ordnance stores or of petrol and he receives from his Financial Adviser, namely, the C. M. A., a monthly comparative statement of similar units' expenditure under each pay and stock head. A study of these figures would show him where the shoe pinches and enable him to see where economies can be effected. As an instance, I may tell you that at home an enquiry into the increase in the cost of gas brought to light the fact that there was a leak in the main. Again an enquiry into the cost of running lorries discovered that one lorry was daily running practically empty to and from the Map Section of the War Office.

Now suppose that in looking through the monthly comparative statement, it is discovered that the figures for provisions have gone up in all units. An examination of the cause might show that a bad local meat contract had been entered into.

Again suppose that the ordnance figures for a regiment which had newly been equipped with web equipment show a rise about

six months after receipt of the equipment. Examination of the figures might show that they were condemning the stores instead of using parts to make regimental repairs.

Now consider these two latter instances. They both come to light without the intervention of any special reports or returns. Then again the administration is not worried with the comparison of many details and with the totalling up of reports and returns on several different subjects. They simply run down a list of figures and deal with exceptional variations. Again these figures show the final result of a man's work, and the G. O. C. is enabled to judge by results and not only by a proposition put up to him. He sees both the beginning and the result of the action. The cost accounts then are not all extra work; they take the place of some reports and returns, and they enable all officers from the O. C. unit upward to see the result of their administration in a practical manner, which would not be apparent from any other means so far suggested.

When the Army first begins to use the accounts, they will find several initial difficulties inseparable from the start of any such procedure. They will find the accounts late and this will be a great trouble. They will also find arrear charges coming forward and complicating the variations. But this will cease when each G. O. C., and each C. O., interests himself in the accounts. The clerks will work better and the Army will give the clerks earlier information and thus the accounts will become prompt and up to date.

15. It has been stated to me in the lecture room that the result of using the cost accounts in this way would be to decrease efficiency. It has been argued that, in order to appear economical, C. Os. would give their horses short work or would not practice their machine guns in order to show less cost. But the G. O. C. is not looking for the lowest cost. He is looking for variations in cost and any considerable variations up or down should be accompanied by its explanation. If then horses were given light work, this would explain the smaller feed, but it might not satisfy the G. O. C. The expenditure of the stores of a unit are at present divided into ten heads, and these are supposed to be sufficient to prevent a unit from being able to practice this form of spurious economy, and to give the G. O. C., the necessary "pointers" showing him what to look for before his inspection begins. I consider that the present sub-divisions are sufficiently fine for very exact administrative results, but

if the G. O. C. want more, they can always be given further sub-divisions, *e.g.*, cost of upkeep of machine guns.

16. All administrative officers can then watch any variations in the figures and the officers under them in turn can explain each such variation and the cause. This will give greater initiative to officers, because, when the system is properly understood and worked by all concerned, it will be possible to empower officers to overspend in one direction in order to save in another. So the Army will be delivered from the deadening effects of those watertight compartments of expenditure which now exist.

17. When then the Army responds to the cost accounting method, the time can be foreseen when scales will be treated as showing merely a list of articles which must be held on charge, and when a paper balance will be given to a C. O., on which he will draw on Army Supplying Agencies for his units' needs according to pattern, but not according to any fixed scale of expenditure. This would give an officer more scope and I fancy it would mean for the keen man more interest in his work. This then is the ultimate object of cost accounting, to show the expenditure, and to show the cost, and to show the total cost against units. The economies of the higher administration then will be judged by cost, and not by any particular year's expenditure, and expenditure which can be shown to result in eventual reduced cost, will receive the encouragement which it needs. This must tend towards improving the economic administration of the Army and decentralizing the whole administration.

18. The system then is in its infancy; there are many improvements yet to be made, but at present an accountant feels somewhat inclined to hold his hand, and only try to perfect the internal working of the accounts, and to await the inevitable demands which the Army must make on his machinery as a result of their practical experience of its use, and of the knowledge which they will gain, in time, by its study.

19. One word more; it is supposed, somewhat generally, that these accounts represent a heavy drain upon the Army budget. Taking the whole expenditure of Military Finance and Military Accounts together, the total percentage is 1.7 of Army expenditure and not all of this is charged against the Army budget. When you take into account the intricacies of Army pay, and of Army manufacturing activities, this is not a large percentage; and private firms, who are learning more and more

to lean upon their financial and cost advice, would probably consider it insufficient to deal effectively with such a widely scattered and diverse business as the Army. The old method of accounting entailed an expenditure of about 1·5 per cent so that the nett cost of the new accounting is ·2 per cent and I think the percentage is decreasing as experience is gained.

THE LADDER.

Col. J. C. Loch, Kumaon Rifles.

The ladder is a form of competition applicable to various kinds of training, and a method of recording results. It is thought that some account of this useful system may be of interest to those who have not yet made acquaintance with it.

The essence of a ladder competition is the arrangement of the names of competitors in some rough order of comparative merit to start with, and the right of each competitor to challenge the one immediately above, and if successful, to take his place.

Let us take, for example, the form of ladder competition most commonly found in this country, namely, the lawn tennis ladder. Smith, Brown, Jones, Stevens, Upcott, Robinson, Evans, Pope all enter for the competition and are placed in what the committee think is their order of merit. The result will be as is shown in Fig I.

Fig I.

Jones.
Smith.
Brown.
Robinson.
Evans.
Stevens.
Upcott.
Pope.

Fig II.

Smith.
Jones.
Brown.
Robinson.
Pope.
Evans.
Stevens.
Upcott.

Smith challenges Jones and defeats him. Brown then challenges Jones and is defeated. Brown holds his own against Robinson. In the meantime Pope challenges Upcott, Stevens, and Evans, in succession, and defeats each of them but is defeated by Robinson. The ladder will then appear as in Fig II.

The advantage of a competition on these lines is that each competitor has always a match in prospect, and a match, once competitors have found their level, with some one approximately his own form. If he is keen, he is all out to climb the ladder by defeating the player ahead of him. At the worst he has to be prepared to defend his own place on the ladder against the man below.

The practical result of this form of competition is it arouses a great keenness among competitors, and improves the standard of play. The annual tournament has its uses, but it crowds into a short period a vast amount of play. It disorganises work and social life generally for a time, and defeat is final for a year. In the ladder competition the keen player studies his opponent, learns the latter's weak points as well as his own, thinks out his game and challenges when he feels he has a chance of success. Defeat is not final, he can always improve his own game and challenge again later.

Rules are necessary, of course, with regard to challenging, accepting the challenge, and other details of the competition. These we will discuss later.

The lawn tennis ladder has been given as an example, but the same system is equally applicable to other forms of competition, whether by individuals or by teams. It lends itself to revolver shooting, different kinds of rifle and miniature rifle shooting, tent pegging, bayonet fencing, platoon football and hockey, tabloid athletics, tent pitching, drill, rifle exercises, the bayonet assault course, etc.

In its application to team work and its adaptability to various kinds of training, the ladder competition is especially valuable to the soldier. Let us suppose that a commanding officer is anxious to improve the handling of arms in his battalion. A ladder competition is started and the terms of the competition are published. In framing the terms especial stress is laid on the points in which the battalion as a whole is weak, and the marking is arranged accordingly. Platoons are placed, to start with, in what is believed to be their order of merit. Keen rivalry is aroused. All ranks soon learn to appreciate the points which count. Those who are weak receive extra coaching and are stirred to effort.

More important than the effect on the men is the effect on platoon commanders. A platoon commander, whose platoon is near the foot of the ladder is not allowed to remain there by his

platoon without making some effort. If he makes no effort to climb, he stands self-condemned, and his incompetence is apparent to all, for the ladder record will be posted in some conspicuous place. If he makes the effort, but fails, then something is wrong with his knowledge or method which it is the business of his company commander to remedy.

Opportunity must be given to platoon commanders to train their platoons, and there is no reason why some portion of the parade time each week should not be allotted to them for the purpose. This will force initiative on the platoon commander, a matter of considerable importance in the Indian Army. It will also free company commanders for R. E. W. T. under the commanding officer, for the study of ground, the preparation of schemes, and higher branches of training.

When two platoons in the same company meet, the company commander can judge the contest. When platoons from different companies meet, the commander of some other company should judge. Once started, a ladder competition works almost automatically.

When a company proceeds on detachment, its platoons fall out of the competition and come in at the foot of the ladder when the detachment returns to headquarters. There is no disgrace in starting at the foot of the ladder. The disgrace lies in remaining there.

The ladder need not close with the training season, it can be carried on from year to year. A platoon which has fallen behind in the early part of the season can always make good later on. In this, the ladder competition has great advantage over the annual drill competition, football tournament, assault at arms, and other annual contest.

The annual competition has undoubted value. It raises the standard of skill, arouses interest, keenness, the spirit of competition, and demonstrates to the less-skilled the methods and technique of the expert. But the intensive preparation beforehand savours somewhat of cramming, and what competitor is there who does not know the feeling of relief when the contest is over? Besides, the full effects are not lasting. Many of the lessons learnt in the hectic weeks of preparation are lost in the subsequent period of re-action. Results cannot compare in permanency with those produced by the steady progressive work which climbs the ladder. In the ladder competition, too, we see immediate results.

Human nature is so constituted that it finds a difficulty in concentrating for some event a year ahead. In the ladder we work by bounds making sure of our ground as we proceed.

It is possible to run several ladder competitions simultaneously, but too many are inadvisable. It is easy to overdo competition, sicken those whom we wish to inspire. In any case it is advisable to wait for one ladder competition to "take hold" before introducing a second. A useful form of board for recording the results of a number of ladder competitions is shown in Fig. III.

FIG. III.

1ST BATTALION THE BLANKSHIRE REGIMENT PLATOON
LADDER COMPETITIONS.

Football.	Hockey.	Rifle Ex.	Battle Drill.

There are a few details which need consideration if the ladder competition is to be a success. The terms of the competition must be clearly defined. Any points on which stress is laid must be specified. The system of marking must be laid down. A period must be fixed within which challenges must be accepted, or, the challenged's position taken by the challenger on the ladder. Some rule is necessary to prevent frivolous challenging. A competitor may not challenge his conqueror immediately after he has been defeated. He must take time and prepare the way for victory. He must also give his opponent a chance of challenging the competitor next above him on the ladder. In addition to these points there are usually others which must be legislated for to suit local conditions.

The ladder system of competition is very adaptable in its application. It can be used for short periods to strengthen successive weak points in the training of the unit, or retained as a permanent part of the unit training organisation. It can be used to instil interest into a monotonous task, or as a test of the powers of junior leaders. Wisely used its value is great, overdone it can become a nuisance.

LEWIS GUNS IN FRONTIER WARFARE.

I.—A REPLY.

*By Colonel Commandant E. C. Alexander,
C.I.E., D.S.O.*

In his article in the January number of the *Journal*, Colonel Keen has expressed the desire to promote a discussion on this subject. The following notes are written in the hope that they may represent in a measure the point of view of some of those whose standpoint he wishes to elicit:—

1. The original article appeals, in the first place, to the lessons of the Great War. Now it is incontrovertable that, in that war, automatic weapons exercised a tremendous effect, both moral and actual. It is a fact that, on many battlefields, machine guns were the decisive factor in holding up the attack. As a result thereof there has been established in the minds of many war trained soldiers as well as civilians, the conviction that the machine gun, and its little brother the automatic rifle, are in all circumstances the predominant infantry weapon. It is, however, at least permissible to speculate whether this preponderating reputation is not in a measure due to certain circumstances, to special conditions, which do not exist on the Frontier, and which may be absent partially or wholly in the earlier stages at least of our next "Badshahi Larai."

It is suggested that among such special conditions were:

- (a) The comparatively low standard of training of all the belligerents in all the later stages of the Great War.

There is good documentary evidence that German divisional and regimental staffs credited us with the possession of wire and machine guns in situations where the historical fact is that the only obstacle which kept the German infantry from their objectives was the rifle fire of our pre-war trained riflemen. It would appear a fair assumption that in these situations there was many a German company and battalion commander who, if he did not "send back a S.O.S. for artillery support against rifle fire," sent one for support against machine guns which had no existence.

(b) The causes varied in the several theatres of war, but they produced in each the same result, a long period of stationary warfare. The battlefields of this period afforded conditions particularly favourable to the use of the automatic weapon, the most important of these being—

(i) Security from flank attack while still able to bring enfilade fire across predetermined lines of advance.

(ii) Facilities for concealment.

(iii) Facilities for ammunition supply.

It can be reasonably argued that, when, through a change in the general situation, for instance the break up of the "Continuous Front" in the West, the automatics of the defence lost these particular advantages, they largely lost their predominance over the riflemen of the attack; it was soon found that, though the enfilade fire of a couple of machine guns, themselves secure against envelopment, could hold up the attack of a brigade, as soon as the guns were themselves exposed to an enveloping attack they could be put out of action with comparative ease, particularly so if the ground in their vicinity afforded good cover for the individual skirmisher, this, too, when the bulk of the attackers were not pre-eminently skilful marksmen or skirmishers. The Post Armistice "Small Wars" very rapidly emphasised this lesson; as far, at least, as the writer's experience goes, whenever a small detachment got into a tight corner it was a matter of riflemen extricating the Lewis or Hotchkiss rather than of the latter saving the situation.

2. Whether he is or is not prepared to accept the above deductions, the most fervent protagonist of the automatic will hardly deny that the automatic cannot develop its full power except against a deep target, *e.g.* by enfilade fire; that it is at its weakest when firing on a shallow, widely dispersed, rapidly moving and intermittent target; or that it relies in fact for its destructive effect on volume of fire rather than on the accuracy of the individual round. To draw an analogy from the craft of the wildfowler, the fire tactics of the automatic are those of the puntgunner, not those of the "Twentybore Expert."

It would seem to be equally impossible to deny that—

(a) In frontier warfare targets are usually shallow, and almost invariably fast moving.

- (b) It is we, not the enemy, who are at times confined to a line of advance which can be predicted with reasonable certainty.
- (c) In "Frontier Warfare," as envisaged by the writer of the original article, it is our enemy who has practically unlimited opportunity for enveloping tactics.
- (d) While in Frontier warfare the conditions make it comparatively easy to locate the automatic, the enveloping attack by a thin line of small, scattered rapidly-moving squads is such an obvious manoeuvre for the irregular, that it is almost a chronic habit with our "Badmen."

3. This is a convenient point at which to deal with two minor questions raised in the original article.

- (a) Why do we fear an undue reliance on the Lewis gun in comparison with the rifle?
- (b) Why since, as its author rightly infers, it is we who present the more suitable target for it, does the Mahsud return to us with comparative readiness the Lewis guns, which we so frequently present to him?

To the first I would suggest that it is a common illusion with all tyros in the use of firearms to imagine that, if only you fire often enough, "some of the covey will fly into it." It is also a regrettable fact that the illusion that a loud noise frightens away the enemy is a tactical nostrum not peculiar to the now defunct Imperial Chinese Army. How many of us have received to our query as to what all the noise was about, as answer a vernacular equivalent of "Aye they aie just firing to keep their ain feet whurrun." Apart from such common human frailties our soldiery are accustomed, and have the right, to rely on the judgment of their officers in such matters. In the absence, therefore, of practical experience, they are prone to accept the estimates of perfervid enthusiasts without any very critical analysis. Should practical experience prove to them that the estimate of the powers of any of their weapons was unduly optimistic, the effect could only be detrimental to their moral.

Why does the Mahsud not cherish as his dearest possession the Lewis gun with which we present him? Firstly for reason of "supply." It is a common habit to regard the tribesman as immune from any such considerations. As a matter of fact they present to him quite as great a problem as they do to us. In spite of our involuntary benefactions, and the increased

amount of the commodity on the market in the Middle East and in Central Asia, 303 S. A. A. is still a costly article on the borderland. The tribesman is comparatively poor. The Mahsud arms himself, *bien entendu*, as much at least for domestic broils, as for any bickerings with us. In these internecine squabbles, and the business of raiding, the Mahsud has no use for a weapon which "eats ammunition." He probably also has the wit to realise that, even if the "Supply Situation" were easier for him than it is, any entering into competition with us in the matter of volume of fire would be for him a losing game. He therefore wisely looks askance at a weapon which would in any measure lessen his two great tactical assets—invisibility and mobility. It would be well for us to consider in what degree these considerations affect ourselves.

Can it be denied that the outstanding lesson of all wars, not excluding the Great War itself, is that final victory goes to the side which can maintain or re-create offensive mobility?

The utility of any weapon under given conditions must be appraised by the extent to which it promotes this end. The ultimate factor in offensive mobility is "Supply."

This is no place to discuss wasteful methods in general, or the expediency of methods based in any degree on a policy of using hammers to extirpate hornets. A passing note, however, may be made that, in the days before the war, a fairly good guide to a unit's efficiency in Frontier Warfare was the amount of firing it did—the lower the expenditure of ammunition on any given operation the greater the efficiency of the unit. A standard not to be hastily laid aside.

Let us now examine the matter of the Lewis Gun in its relation to "Supply."

Each Lewis Gun necessitates 1·25 Mules.

The feed of these mules, inclusive of fodder = 25 lbs. per diem.

The rations of a Rifleman inclusive of fuel weigh approximately 5 lbs. per diem. The ammunition allotted is 2,700 rounds per gun, against 300 required for the individual rifleman.

It is suggested that, on the basis of these figures, and reckoning in the two men of L. G. sections not armed with rifles, it is fair to assess the maintenance of each Lewis Gun as a charge on our L. of C. equivalent to that of seven riflemen, or a standard section.

I am unable to verify the official figures, but believe that Hythe experiments fix the fire power of a Lewis Gun working at full blast as equivalent to that of a full platoon.

On this basis the Lewis Gun would appear to fully justify its place in our armament. But is this a complete and accurate summary of the situation? We think it is not. The opportunities for usefully employing the full power of the Lewis Gun are too infrequent. What we require to maintain the tactical offensive mobility in Frontier Warfare of our infantry, in general, and our platoons in particular, are—

- (a) The power of opening fire, not necessarily of great volume, but of great accuracy, in the minimum time in any direction against small and probably fast moving targets.
- (b) The power of moving with great rapidity, over rock and cliff, through scrub, in fact every conceivable kind of bad going except marshland.

For the former we require the attributes of the "Twenty Bore Expert" and his equipment, not those of the punt gunner. For the latter, in addition to a high degree of mental and physical training for all ranks, it is absolutely essential that the platoon commander should be freed as far as possible from any consideration of protecting and manœuvring anything in the nature of a dragging tail. The presence of even a single mule, and, even to a lesser extent, the more heavily weighted personnel of the Lewis Gun sections, destroys the homogeneity of the platoon in this respect.

The clog these form to the general mobility of the platoon is a strong, if not the strongest, argument for the policy, in Frontier Warfare, of grouping Lewis Gun sections as a "company weapon."

A Company Commander will be able more frequently to detail them to positions best situated to their particular strength and particular weaknesses.

Now no experienced wildfowler would deny the power of the punt gun. He would probably even agree that under certain circumstances it would be possible to make with one a very large bag of snipe. If, however, he heard that Jones armed with a punt gun, or even an eight bore, proposed to accompany Brown and Robinson, experts with the "Twentybore," on a day's snipe shooting, he would certainly consider that Jones' contribution to the bag would be disproportionate to the inconvenience to Jones, as well as to Jones' expenditure of powder and lead. If he knew them well enough he might even suggest to Brown and Robinson that the inclusion of Jones in the party was likely to be a hind-

rance to their day's sport, and that the party would probably be happier, its bag certainly larger, if they substituted Smith, another "Twentyborer."

Similarly, we do not deny the power of the Lewis Gun or any other automatic weapon. We fully recognise that, since the responsibilities of an Imperial Army are not limited to the "Frontier" mountains, even more, perhaps, because of the rapid advances in mechanical invention, it is our duty to be fully conversant with their use. As things are however, Lewis Guns represent to us on the Frontier, not so much concentrated power, as power in an inconvenient form. For the reasons I have tried to set forth above, we are emphatically of opinion that in "Frontier Warfare" a company consisting of twelve rifle and four Lewis Gun Sections is not the equivalent in power of twenty-eight rifle sections. Further, if given our choice of a Lewis Gun or seven riflemen, seven men who can if need be go anywhere on their own, watch and shoot in seven directions, whom it will take on the average seven bullets instead of one to put out of action we should, if assured of their quality, be inclined to chose the riflemen.

II.—A COMPANY COMMANDER'S VIEW.

Colonel Keen, in an article published in the January number, and, Major Lecky, in an article in the July number, have both already written on this subject.

Colonel Keen evidently belongs to what may be called the orthodox party and strongly advocated keeping the Lewis Gun a Platoon weapon. Major Lecky, though most of his arguments are in favour of grouping the guns of a company, was for "a solution somewhere in between the two of them."

Colonel Keen puts forward certain suggestions "In the hopes that they may inspire others who have far greater experience than (himself) to record their views for the common benefit."

I do not claim the greater experience, but, in that I actually worked a company (for more than a year in peace time hill work and for about six months in Waziristan) organised into three rifle platoons and one Lewis Gun platoon and escaped being cashiered, I may possibly claim a certain amount of practical, as opposed to theoretical, experience.

What originally led me to start experimenting with my company was that I had almost invariably noticed,

- (1) How much a Lewis Gun section slowed down the movements of a platoon when working in really broken ground.
- (2) How very frequently the Lewis Gun mule was discarded early in the day, and often was not picked up again till the Cease Fire blew.
- (3) How often the platoon commander either—
 - (a) Commanded his L. G. section and left his rifle sections, or,
 - (b) Commanded his rifle sections and left his L. G. section.
- (4) How seldom the L. G. ever came into action at all, being almost invariably engaged in trying to catch up the other sections.

All, of course, could be put down to bad training. Yet everyone appeared to be doing his best, and I noticed the same faults in other companies and battalions. So I came to the conclusion that possibly the normal company organisation was not suited to hill fighting.

I then asked and obtained permission from my Colonel to be allowed to try grouping the four Lewis Guns into one platoon. I first had to consider whether—

- (1) Four Rifle Platoons of three sections each and one L. G. Platoon of four guns, or,
- (2) Three Rifle Platoons of four sections each and one L. G. Platoon of four guns would be the best arrangement.

The former had the advantage of keeping the existing organisation more or less intact, but had the disadvantages of giving four rather weak rifle platoons and of leaving the L. G. platoon without a commander or staff.

The latter had the disadvantage of breaking up an existing platoon, but had the advantages of giving three strong rifle platoons and also provided a L. G. platoon commander and platoon havildar from the platoon which had been broken up. After trying both I adopted the latter, and, in order to give each platoon commander practice, broke up a different platoon every month, sending one of its rifle sections to each of the other three rifle platoons.

The platoons, though broken up for manœuvre purposes, retained their original organisation when in barracks or in camp, or when in permanent Platoon Piquets. So much for the organisation. Mine was a class battalion.

As far as tactics went it appeared to me, without unduly worrying myself whether I was transgressing any of the Principles of War, that I had an ideal weapon for hill work. To the Lewis Gun platoon naturally fell the role of supporting by fire, and it was particularly well adapted for working with guns in pairs. One pair of guns being usually held in readiness while the other was moving. For advanced guard work, one platoon as vanguard with a platoon echeloned on either flank, and the gun platoon in a central position, moving along what was usually the only path fit for mules, seemed fool-proof.

For picquetting, it was at last possible to use two section piquets without one of the two being a Lewis Gun section. The whole platoon was able to move at the same pace. One no longer was worried by seeing that 'bait for the Pathan,' the unprotected mule, wandering along by itself. The Piquet Commander had a much simpler job, both when moving up to his piquet position and when coming away. That initial move necessary to get the L. G. clear before withdrawal, which so frequently let the enemy know that one was preparing to go, was no longer required. When a L. G. jammed (bad training of course, but also sometimes bad material) the whole platoon did not say to itself "What the hell has happened now," and start getting in a sweat. The Company Commander had a very useful reserve always in hand. Everyone knew where Company Headquarters was, and stretcher bearers, ammunition mules, L. G. mules, etc., were never left out in the blue. When one's company was spread out picquetting a mile or more of road one probably required some sort of supporting position. The L. G. Platoon, having seen the piquets go up and knowing the routes they were likely to come down by, was able to get into the very best position (or positions) to help them off in turn.

In covering the building of a piquet or the destruction of a village or any similar operation, the company will usually be allotted an area, and, when the withdrawal commences, it is very satisfactory to be able to smother any point with fire at a moment's notice. And it certainly does simplify the work of the Platoon Commanders, who are frequently rather junior N.-C.Os.

In practice on service I can only lay claim to have come under fire twice, both times when withdrawing from a covering position

On both occasions the L. G. Platoon happened to be placed in a fairly central position from which it could get away unseen and from which it could open fire at once. The actual covering platoons were able to move back at a very rapid pace and this, added to the volume of fire which was concentrated on the danger spot at the first enemy volley, appeared to account for the fact that in neither case was a man hit, nor did the enemy make any attempt to follow up.

I am inclined to believe that, had the Lewis Gun sections been with their platoons, we should probably have suffered that initial casualty which is so frequently the cause of further loss. The ground was very broken and the enemy were able to come to within about 200 yards without being seen. Had it been necessary to advertise the withdrawal by a preliminary movement of the Lewis Gun section, or had the platoon been encumbered by a Lewis Gun when withdrawing, I think that the enemy would have made better shooting, as there was a belt of fairly open ground which had to be crossed during the retirement.

Though these were the only occasions on which the company came under fire, yet it, together with the other companies of the battalion, all of which adopted the same organisation, had to work over types of country varying from low, bare hills to very densely wooded ridges between 1,000 and 1,500 feet in height, and was engaged in a variety of minor operations, such as Advanced Guard, Piquetting, Covering and Convey protection work.

For all types of country where covering fire can be given from a position in rear and where quick movement over broken ground is absolutely essential, both in attack and retirement, I am convinced that the organisation of the company as outlined above is eminently satisfactory.

A long day in the hills over very broken country is sufficiently tiring for a rifleman. It is killing for the Lewis Gunner, even in the winter.

I fail to see why, because the platoon with two Lewis Guns came to be the tactical unit in the Great War, the platoon with one Lewis Gun should be held to be the tactical unit for Hill warfare. The Principles of War may remain the same, and he would be a bold man who would contradict this, but do they come into the case at all, beyond the fact that it sounds well?

I do not see that it is in any way a violation of a Principle of War to organise a company into three Rifle and one L. G. Platoon

No sane person would advocate the employment of a Division of the same composition on the frontier and on the Western front. The question of mobility forces us to work with pack artillery and to leave our tanks behind. It is just this question of mobility which is at the root of the difficulty with the Lewis Gun when used as a platoon weapon.

The Lewis Gun is far too useful an auxiliary to be discarded, but its place is not with the platoon in Frontier Warfare.

TURKISH COMMUNICATIONS TO IRAK IN 1916.

*From the Account of Captain Mahomed Nihad Bey,
Staff Officer of the 6th Turkish Division,
by "Skander Bey."*

INTRODUCTION.

The difficulties of the British line of communication in the campaign in Mesopotamia are well known. Failure to realise them in 1915 led to the disaster of Kut-el-Amarah. General Maude was able to remedy the situation only when he had all the resources of the British Empire behind him and the result of his reorganization was the capture of Baghdad.

A glance at the map will give some idea of what the Turks had to contend with in their communications to Irak. A single railway ran from Haidar Pasha on the Bosphoros to railhead at Ras-el-Ain, but it had two important breaks over the Taurus and Amanus mountains, 48 and 33 miles long, respectively, and through rail communication was not achieved till just before the Armistice. In addition, a short stretch of 81 miles of railway ran from Samarra to Baghdad. The remainder of the distance from Ras-el-Ain to Baghdad, some 300 miles, had to be marched, though it was possible to make use of rafts from Mosul to Samarra for the transport of men and a certain amount of impedimenta.

Partly through negligence and incompetence, partly through poverty, physical difficulties and the economic strain of the war, the Turkish communications went from bad to worse. By October 1918 the 6th Turkish Army in Irak was deficient of the most ordinary essentials of life and the men were openly mutinous.

The following pages are taken from an account by Captain Mahomed Nihad Bey, Staff Officer of the 6th Turkish Division, and gives a good idea of the difficulties experienced by the Turks in maintaining the Tigris front even in 1916.

The 6th Division had taken an active part in the fighting at Chanak Kala. After witnessing the retirement of the enemy from the important Azmaq front in the Anafarta zone, which it had held without a break for nearly four months, the Division

was withdrawn from the peninsula and sent to Tek-Four-Daghi where it spent the winter months training and re-equipping.

The campaign in the Dardanelles had been brought to a victorious conclusion, and the Germans conceived the idea of dispersing the Turkish Army to the various European fronts both to use it for their own ends and to prevent Turkey making a separate peace. After many inspections the first formation selected to go was the 6th Division, which therefore brought its ranks up to full establishment and completed its equipment by the end of the winter of 1915-1916.

Everything was ready for a move to Europe which was to take place in a day or two when, as a result of the patriotic remonstrances of the well-known Marshal Ahmed Izzet Pasha to the commander of the second Army, to which the Division was attached, the destination of the Division was suddenly changed on March 1st from Galicia to Irak.

STEAMER AND TRAIN MOVES.

The column moved by steamer from Tek-Four-Daghi to Darinja on March 1st. The artillery went one day in front of the Division, and we did not see the cavalry squadron till we arrived in Irak. According to the Tek-Four-Daghi-Darinja movement order, the sea transport of the Division was to take five days. As a matter of fact, it took eleven, not including the bridging train and cavalry. The bridging train was to come *viâ* Izun Kupri.

The move of the Division by rail from Darinja to Bozanti, commenced on the 3rd March. It was completed in 18 days by running three trains on four days, 1 train on one day, and two trains on each of the other days. That is to say, the last echelon left Darinja on the 20th March.

Thirty-nine trains of 27 and 30 wagons each were allotted to the Division, but as this allotment proved insufficient, 3 more had to be provided. The infantry of the Division received drafts of 20 per cent. (unarmed) at Darinja, and battalion strengths averaged 1,350. It was impossible to transport units complete, and there was consequently a good deal of confusion. In this way the move of the Division was carried out by 42 trains of an average of 20 wagons each = 1,218. If we had had 50 wagon trains, the Division would have only required 24 trains, and we did in 18 days what would have been accomplished in 1 day in Europe.

Division Headquarters entrained on 10th March. As the movement of the various echelons were dependent on that of Headquarters, the latter will only be dealt with in the following pages.

On the 12th March Headquarters reached Bozanti. Including all halts, our average speed from Darinja, etc., was $10\frac{1}{2}$ miles per hour, which cannot be considered bad, but even so, we were 11 hours behind time.

We halted on the 13th at Bozanti. On the 14th we marched 12 miles along the Bozanti-Kulak road to Kadir Khana; on the 15th, 8 miles to Cham Alan; on the 16th 16 miles to Kuvakli Khana, arriving on the 17th at Kerd Musi, 9 miles. On the 18th we marched 3 miles to Kulak station where we entrained and arrived at Mamara at noon after six hours' run. The average speed was $13\frac{1}{2}$ miles per hour.

On the 19th we began to cross the Amanus mountains by route march and arrived at Hasan Begli, 16 miles. On the 20th we reached Islahia, 17 miles. From here the troops marched for 5—6 days to Katma station on the Aleppo railway. Headquarters entrained and reached Katma in 4 hours, 55 miles. It was the practice of all Divisional Headquarters to spend the time gained in this way in Aleppo. But as Nasif Bey preferred to arrive first at Ras-el-Ain to receive the troops and personally superintend their forward march as they arrived, we left Katma by train on the 22nd, and arrived at Ras-el-Ain on the 23rd, after a $15\frac{1}{2}$ hours' journey.

At that time Ras-el-Ain was the railhead and from here a long desert march stretched before us. Headquarters had come 944 miles by rail and 81 miles by route march in 13 days.

RAS-EL-AIN-MOSUL-BAGHDAD ROAD.

Here we were informed as to the army to which the Division was to be attached. As is well known, when a new Division gets on the move, every Army Commander who has anything to do with its passage wishes to annex it as soon as it comes into his area. All sorts of contradictory orders are issued in consequence and petty annoyances take place. This is what happened to us.

When the Division started off from Darinja, we were destined for the second Army which was concentrated round Diabekr. We were required in the 16th Corps, which was at that time weak in numbers and isolated in the neighbourhood of Tiflis. But, as the British were making heavy attacks at the time to save Kut el-Amarah, we were also urgently needed in Irak. Consequently as soon as Headquarters reached Mamara, we received orders to send the leading infantry regiment and artillery battalion to Baghdad and the remainder of the Division was to be attached to the 16th

Corps. But when we arrived at Ras-el-Ain, we realised that the situation had altered. The 17th Regiment and 1st battalion mountain guns which had concentrated there on the morning of the 23rd, had received orders to join the 16th Corps *via* Diabekr and they marched off at once. We were told that the remainder of the Division would be attached to the 6th Army.

Division Headquarters remained at Ras-el-Ain till the 30th March supervising movements. The orders we received during this period told us that the 25th Regiment, of the 8th Division which was coming behind us had been attached to the 6th Division that the first African battalion formed from Moslem prisoners captured by the Germans would come under our command in addition to another mountain gun battalion. As a matter of fact, none of these troops ever joined us.

On the 30th, Division Headquarters marched off from Ras-el-Ain with the 1/16th.

On the road there are two watering places, 4½ and 10 miles respectively from Ras-el-Ain, called Charjib Soularî. These are usually dry, but, as we were marching in the rainy season, they were like a large lake. We crossed this with great difficulty and camped at Beyk Charjib.

On the 31st of March we marched to the Arab village of Hai Shari, 15 miles; on the 1st April to Tel Erman, 10 miles; on the 2nd to Bir Tavah, 10 miles; on the 3rd to Amouda, 8 miles; and on the 4th we arrived at Nisibin, 15 miles. The weather was rainy; every afternoon or night very heavy thunderstorms broke out, but fortunately the road was not very muddy. Of course there was no real road and it was possible to march anywhere. The ground was so flat that no break in the surface could be seen in any direction.

The people of the country were Arabs and Kurds and are completely exempt from military service. A good many Turks were also to be seen. Tel Arman was the nearest line of communication post and the local "mudir" (official) was quite obliging, in the hope of getting a war medal.

After a halt on the 5th, Dokur was reached on the 6th, 15 miles; a desert post called Kerbagil on the 7th, 10 miles; and Demir Kapou on the 8th, 10 miles. Kerbagil was merely a supply dépôt while Demir Kapou was a line of communication post. On the 9th we reached the post of Aklal-el-Kuchar, 22 miles. There was not a drop of water along the whole route. Even at Aklal-el-Kuchar the water supply was limited to a few dirty

holes. On the 10th we arrived at Aoinat, 15 miles, where there was a small post. On the 11th we halted at Aoinat. The temperature, at this time, was 77° in the shade.

We had thus come 72 miles from Nisibin. On the 12th we marched to Hugna, 12 miles, on the 13th to Zenazel, 16 miles; on the 14th to a high place on the Tigris called Hamidat, 9 miles; and on the 15th we arrived at Mosul, 8 miles. Hugna and Zenazel were small posts. Hamidat was an important store. Our third stage was thus 45 miles, and the Ras-el-Ain Mosul road was roughly 185 miles. According to the programme in force at that time, this distance could be covered in 12 days, whereas we had taken 17, including 2 days' halt. On the last two or three stages we were able to obtain flour. At Tel Erman and Nisibin the men were able to obtain mutton and other rations. It was painful to see the men after their long marches, searching for water to cook their bread, and gathering brushwood to light fires. But the patient, hardy and longsuffering Turkish soldiers looked upon all this as a matter of course. They bore all privations without a murmur of dissatisfaction and put up with what they were given. Their normal ration was barley and biscuits. As a matter of fact, an energetic lines of communication administration could have obtained all sorts of rations for their posts, and it could have baked bread, or given it to the troops to prepare. This was not the affair of Division Headquarters which marched from post to post in the same way as the troops, and had enough to do to keep the echelons moving.

From Mosul to Baghdad, the men, guns, and part of the baggage were to proceed by raft on the Tigris as far as Samarra, from where there was a railway to Baghdad; animals and carts were to march by land in 12 days.

We halted for the 16th and 17th at Mosul where we received the welcome news of the successful operations round Kut. The following afternoon the move by rafts commenced. What is a raft? Those who do not know will think as I did at first that it is a regular boat, but as a matter of fact it is nothing of the sort. Its component parts consist of skins and long straight poles. The skins are inflated and fixed to a framework made of the poles, and the whole contraption then rides easily on the water. Care, of course, must be taken that the skins are not cut or deflated in any way. The raft floats down the river by the force of the current and at its destination is broken up, the wood used for fuel and the skins sent upstream to be used again;

There is not a single nail or piece of string on the raft. The wood is all tied together with strips of bark.

The size of the rafts depends on the amount of water in the river. They are made with anything up to 300—400 skins, and a raft this size can take two complete Turkish Companies. They can only travel by day when there is a favourable wind, and as soon as evening comes or a wind springs up, the raft is tied to the banks and the troops camp.

Division Headquarters moved at 1 P.M. on the 18th, and having travelled 14 to 15 miles by 3 P.M. halted for the night. On the 19th, the wind was rather strong and we only did 20 miles after much difficulty and many halts.

On the 20th, two rafts floated down tied together and owing to the negligence of the raftsmen, we struck some rocks in the river. The raft on which we were, was in danger of foundering. The skins burst and the top layer was under water. After much difficulty we reached the shore, mended the raft in half an hour, and continued our journey.

On this day we did 56 miles, on the 21st, 66 miles reaching Takrit, on the 22nd we did 34 miles and arrived at Samarra. Thus we did 191 miles by river. On the 23rd, after a journey of 81 miles in 4 hours we reached Baghdad. At Baghdad station, which is on the west bank, we experienced a bad bit of staff work. Except for an Arab soldier from the administrative staff who did not know Turkish, there was nobody to meet us nor show us the way. However, after some difficulty we found military Headquarters.

On this day the 6th Division concentrated at Baghdad :—

16th Regiment.
Field Company.
Sanitary section.
Telegraph section.
Division Headquarters.

The 18th Regiment had arrived on the 19th before us, and while embarking on ships to join the 13th Corps on the Tigris front suddenly received orders to go to Khanikin owing to the retirement of the Persian Group. It had marched on the morning of the 22nd together with a machine gun company of 6 German machine guns which had been found at Baghdad.

Our Guns, cavalry and transport were still behind:

As all the transport of the units which had concentrated at Baghdad would have to come by road from Samarra, it could not arrive for at least another week.

THE MOVE OF THE 6TH DIVISION FROM BAGHDAD TO KHANIKIN.

When we arrived at Headquarters we learnt that Khalil Pasha, the former commander of the 18th Corps who had been appointed to the command of the 6th Army on the death of Von der Goltz Pasha, was about to arrive at Baghdad. We all therefore went to meet him. At this time the troops of the Division were in process of transferring to a camp on the east bank near the tomb of Abdul Qadir Gilani.

Owing to lack of transport the men had to carry ammunition boxes on their backs, and everything was most difficult. At 4 P.M. Khalil Pasha arrived in the gunboat captured from the British at Ctesiphon and was received with the honours due to a victor. But no sooner had he put his foot on shore than he was called to the telephone by Shevket Bey, the Commander of the Persian Group. A little later he called the 6th Division Commander to his side and explained to him the following situation:—

Shevket Bey had explained as follows:—

“To-day Bub* Bey had received news that two Russian Cavalry Divisions had turned the flanks of the Khanikin Group, and were proceeding to surround it. Upon this he immediately ordered the retirement of the force to the Diala and moved off immediately with all his staff. But I do not view the situation so gravely and am staying on.”

The Pasha at once gave orders that Bub Bey was to be superseded and the command given to Shevket Bey. He also ordered us to remain in Baghdad and rest for the present.

But next morning, the 24th April, we received an order written by the Army Commander himself that “6th Division Headquarters and the 16th Regiment will move on Khanikin at once.” We had had no previous information of this, and the matter was urgent. We judged that the situation had taken a turn for the worse at Khanikin. As a matter of fact, in a report sent during the night. Shevket Bey said that a strong Russian Force had begun to attack Khanikin, and he had given orders for the evacuation and withdrawal from the town.

On the 23rd the Russians had approached Khanikin and opened fire. This event had been exaggerated by the Commander and the retirement had been ordered. Fortunately the order was not

* A German.

completely carried out during the night 23rd/24th. Though the town was evacuated and a certain amount of stores destroyed, the troops at the front did not receive the orders to retire in time, and thought it better to wait till morning. But on the morning of the 24th seeing nothing in front of him except a few cavalry Shevket Bey cancelled the order to retire, and decided to re-occupy Khanikin. The Persian volunteers and irregulars, however, went off precipitantly down the road to Bakuba.

As has been shown the Division had not a single cart or animal of any sort and we applied for them to the Headquarters.

"The Administrative staff have been given orders ; Transport will be procured," we were told. We went to the Administrative staff.

"Yes, I have given orders. You will have as much transport as you require."

"How will the commander and mounted officers be mounted ?" I asked.

"On mules" was the reply.

"That is rather a shame," I answered. "There are plenty of good horses in the streets of Baghdad."

"They all belong to the Arabs."

"Do you mean to say that even the Divisional Commander must ride a mule, when there are all these horses to be had in Baghdad," said I.

"My friend, use your intelligence, you can't do that sort of thing in this country," was the reply.

A little later our camp was invaded by a crowd of mules, without ropes, or halters, or pack-saddles—in fact as nature made them—accompanied by a howling mob of Arabs. However, God helps those who help themselves !

At this time the Tigris flooded its banks. An embankment on the east of the town broke down and formed a marsh or rather a shallow lake, towards the river, 1—1½ miles broad. At first we were able to cross it by means of boats and a curious vessel called a "Kufa" resembling a tomato with the inside removed, which was made of reeds and bitumen.

By evening of the 24th April, except for an officer and some men who were drowned, we succeeded in getting over this obstacle. Most of our baggage was deposited in Baghdad to await the arrival of our transport.

Early on the 25th, Division Headquarters, the 16thth Regiment Sanitary section and Field Company marched off to Khan Beni Said. The march was a sight ! The Divisional Staff were mounted on horses supplied from the veterinary hospital, which had blankets instead of saddles and string instead of harness. The animals were very sorry for themselves. The Division Commander's horse had no shoes on two feet and a large swelling on its head. All the other mounted officers' mules were entirely innocent of saddlery. The feet of tall officers touched the ground, and the march of these six legged combinations afforded much amusement. Ammunition boxes had to be tied together and just hung on the mules back and we put grass under the ropes. But the animals were much too clever to carry a load of 180 lbs. Consequently each mule required 5—6 men to look after it, and the Division became nothing more or less than a mule convoy. However, we told everyone we were off on an expedition to Persia.

When we bade farewell to the Army Commander, the latter said :—

“ I have warned the 2nd Division to get ready, if necessary I will send up more troops. You must stop the enemy at all costs.”

We discovered later that the 2nd division and Independent Cavalry Brigade received orders to move from the Tigris front on the 24th/25th April.

This was the genesis of the Persian Campaign, and the plan to attack the British on the Tigris when the 6th divisionth reached the front was abandoned.

The distance from Baghdad to Khanikin is divided into stages as follows :—

Baghdad—Khan Beni Said 17 miles, waterless.

Khan Beni Said—Bakuba... 13 miles, a little water.

Bakuba—Shahrban ... 25 miles, water plentiful after half way.

Shahrban—Kizil Robat ... 19 miles, waterless.

Kizil Robat—Khanikin ... 20 miles, waterless.

The heat during the day was still bearable, and it was decided to march by day to avoid giving the troops the difficulties inseparable from marching by night.

Khanikin was reached without a long halt. While approaching Khan Beni Said which was a mud village built by a Persian “ Haji ” and contained barracks for a regiment, we met

Bub Bey and his staff who had been hurrying back day and night for three days. Here we saw our first mirage, and it was sad to see the thirsty men led away to what appeared to them to be large lakes of water. The ground was very slightly undulating and the clouds of dust which rose into our faces and eyes made one very tired. The telegraph line was our only guide.

When we arrived at Bakuba on the 26th, we saw a great crowd of Persians, including soldiers, beggars and refugees. We, at first, wished to take all these to Khanikin by force, but afterwards had to give up the idea. The road from here to Baghdad was anything from $2\frac{1}{2}$ miles from the Diala on the west bank, but the direction of our march prevented us taking advantage of its water. 15 miles from Bakuba is the pretty watered and wooded spot of Khanabu Tisara. Bakuba, Shahrban and Kizil Robat are all fairly big towns surrounded by extensive gardens. The Jabel Hamrin can be distinguished in the distance between Shahrban and Kizil Robat. The road between Kizil Robat and Khanikin is slightly up hill and crosses two sandy and steep ranges.

The division reached Shahrban on the 27th, Kizil Robat on the 28th and finally Khanikin on the 29th.

This is the story of how the 6th Division arrived at Khanikin from Tek-Four-Daghi in just about two months, its Infantry, Field Company and Sanitary Section complete, but without transport, guns, supply columns or animals.

The last echelon could not arrive in less than 15 to 20 days more.

The distances crossed from Darinja were—

					Miles.
Railway ...	...	...	...	...	970
Rafts ...	...	...	...	...	191
Route march ...	...	...	...	...	415
Total					1,576

The transport had come by road instead of by raft and so had marched a total of 604 miles. All men and material were obliged to do this arduous march to reach Irak and it took at least three or four weeks for a tail of a division to close up on the head. Ammunition and Ordnance stores came in the same way and it is not an easy problem of time and space for the staff. A force which is sent to Irak by such means, which deprive it of all

effect in the war for 2 to 2½ months, and which subject it to all sorts of hardships and deprivations, naturally suffers a good deal of wastage in men, animals and materials.

Our division was fortunate as to weather, and by paying the greatest attention to march discipline, the battalions which marched from Darinja 1,350 strong arrived at Baghdad with 1,050—1,100 men, thus losing about 15 per cent. before coming to the front at all. This is about the minimum. Battalions which had arrived at Baghdad independently before us, produced only 859—900 men. The wastage was always heavy among the animals. All the men's boots were quite worn out, and other equipment was deficient or unserviceable and had to be renewed.

Consequently General Headquarters should have exercised the greatest care in considering whether to send troops or material to these far off fronts or not.

As a matter of fact no thought was given to the matter at all.

APPENDIX I.

ORDER OF BATTLE, 6TH DIVISION.

Commander ...	... Colonel Nazif Bey.
Staff Officer ...	... Captain Muhammad Nehal Bey.

INFANTRY.

16th Infantry Regiment ...	Commander... Major Amin Bey.
	3 battalions.
	1 M. G. Coy. of
	10 M. Gs.
17th Infantry Regiment ...	Commander... Major Rehad Bey.
	3 battalions.
	1 M. G. Coy. of
	10 M. Gs.
18th Infantry Regiment ...	Commander .. Lt.-Col. Mustapha
	Bey.
	3 battalions.

DIVISIONAL TROOPS.

Cavalry—1 Squadron.

Artillery—1st and 2nd battalion, 3rd artillery re-
giment, 3rd battalion, 6th artillery regiment,

Mtn. Guns 23 Guns.
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1 Field Company.	
1 Bridging train.	
1 Signal Section.	
1 Sanitary Section.	
1 Field Ambulance.	
3 Light Supply Columns	... 55 carts each.
3 Heavy Supply Columns	... 64 carts each.
1 Mountain Ammunition Column	} 45 carts each.
2 Field Ammunition Columns	
1 Bakery Section.	

Each Battalion had 1,046 rifles.

APPENDIX II.

MARCH TABLE OF THE 6TH TURKISH DIVISION.

Tek-Four-Daghi...	March 1st.	} By route march 48 miles.
Darinja	... March 1st—10th, Halt.	
Bozanti	... March 12th, 590 miles.	
Bozanti	... March 13th, Halt.	
Kalir Khana	... March 14th, 12 miles.	
Cham Alan	... March 15th, 8 miles.	
Kuvakli Khana	... March 16th, 16 miles.	
Kerd Musi	... March 17th, 9 miles.	} By train.
Kulak Station	... March 18th, 3 miles.	
Marmara Station	March 18th, 81 miles	... By train.
Hasan Begli	... March 19th, 16 miles.	} By route march 88 miles.
Islahia	... March 20th, 17 miles.	
Katma	... March 25th, 55 miles.	... Halt
Katma	... March 20th—22nd	... Halt
Ras-el-Ain	... March 23rd, 218 miles	... By rail.
Ras-el-Ain	... March 23rd—30th	... Halt.
Beyuk Charjib	... March 30th, 10 miles.	} By route march, 68 miles.
Hai Shari	... March 31st, 15 miles.	
Tel Erman	... April 1st, 10 miles.	
Bir Tavah	... April 2nd, 10 miles.	
Amouda	... April 3rd, 8 miles.	} By route march, 72 miles.
Nisibin	... April 4th, 15 miles.	
Dokur	... April 6th, 15 miles.	
Kerbagil	... April 7th, 10 miles.	
Demir Kapou	... April 8th, 10 miles.	} By route march, 72 miles.
Aklal-el-Kuchar	... April 9th, 22 miles.	
Aoinat	... April 10th, 45 miles.	

Aoiuat	...	April 11th	...	<i>Halt.</i>
Hugna	..	April 12th, 12 miles.	}	By route march, 45 miles.
Zenazel	...	April 13th, 16 miles.		
Hamidat	...	April 14th, 9 miles.		
Mosul	...	April 15th, 8 miles.		
Mosul	...	April 15th—17th	...	<i>Halt.</i>
Tigris	...	April 18th—19th, 35 miles.	}	By raft, 191 miles.
Tigris	...	April 20th, 56 miles.		
Tekrit	...	April 21st, 66 miles.		
Samarra	...	April 22nd, 34 miles.		
Baghdad	...	April 23rd, 81 miles	...	By train.
Baghdad	...	April 23rd—24th	...	<i>Halt.</i>
Khan Beni Said	...	April 25th, 17 miles.	}	By route march, 94 miles.
Bakuba	..	April 26th, 13 miles.		
Shahrban	...	April 27th, 25 miles.		
Kizil Robat	...	April 28th, 19 miles.		
Khanikin	...	April 29th, 20 miles.		

SUMMARY OF DISTANCES.

Train.		Raft.		Route march.
Dariuja—Bozanti	590	Mosul—Samarra	191	Bozanti—Kalek 48
Kulek—Marmara	81			Marmara—Kat-
				ma ... 88
Katma—Ras-el-Ain	218			Ras-el-Ain—Ni-
				sibin ... 68
Samarra—Baghdad	81			Nisibin—Mosul 117
				Baghdad—Kha-
				nikin ... 94
Total	...	970	191	415

1,576 miles.

THE SERVICE RIFLE.

*By Major J. Morrison. R.A., Inspector of Guns and Rifles
in India.*

"When 'arf of your bullets fly wide in the ditch,
Don't call your Martini a cross-eyed old bitch ;
She's human as you are, you treat her as sich,
An' she'll fight for the young British soldier."

[KIPLING.]

The rifle of to-day is a much more complicated article than the one which was the subject of Kipling's adjuration to the soldier of thirty odd years ago and, consequently, the warning contained in his lines has, or should have, a much greater force now than when it was given.

It is a piece of mechanism, not merely an assemblage of wood and steel, and to get the best results of which it is capable the same care in its handling and maintenance is necessary as is given to a privately owned watch or bicycle.

The accuracy of every rifle issued from the factory ; either at Home or in India is a matter of grave concern to those responsible. A considerable amount of money and a greater amount of time and care are bestowed to ensure, first of all, that the weapon is, as nearly as possible, perfect mechanically and, when that has been attained, to adjust and test the sighting of each individual weapon.

It is desirable to emphasise the effect of atmospheric conditions on the shooting of a rifle especially in a country like India where it can experience so many variations. Assuming that the weapon remains in the same, well-nigh perfect, mechanical condition as it was when it passed its shooting test in the Factory, then if the atmospheric conditions alter materially its accuracy standard will conform and the rifle will shoot high or low.

To take a concrete example. A rifle passes, successfully, its accuracy test in Bengal in July. The temperature is then about 95° F., the height about sea level—and the humidity of the atmosphere has reached the saturation point. Now if the same arm is shot again in Quetta in October its original accuracy will have altered entirely owing to the very different conditions persisting

there. These vicissitudes are counteracted by the provision of a range of foresight blades of different heights.

The greater the appreciation there is in the service of the effects of climate and the means of counteracting them the higher will be the standard of accuracy.

There are many mechanical causes which will upset the accuracy of the rifle. Some of them are due simply to wear and tear on the components and though they cannot be altogether avoided, a good deal can be done, by the exercise of care and thought, to mitigate the effects.

For instance the walnut fore-end is sensitive to climatic influences, and is liable to warp. If it does so the barrel is bound to follow, and consequently accuracy will be seriously affected. Every effort is made in manufacture to eliminate this tendency by the use of properly seasoned wood, but, despite all that can be done, if the rifle is laid down on grass covered with dew at an early morning parade and then exposed to a hot sun for a comparatively short time there is very considerable danger that the fore-end will warp as a result of this special act of thoughtlessness.

Again a keen soldier may spot a trace of rust on the ramps of his backsight bed or the underside of his slide and, with the best intentions, clean it off with an abrasive of some sort. He has taken the first steps towards destroying the accuracy of his weapon as his abrasive is nearly certain to remove a little metal from the components in question and, as their correct configuration is very important to the sighting system, accuracy will, after a few such cleaning operations, deteriorate.

Another very common defect, which it is well within the power of the soldier to prevent, is the depression which is very often found at the rear end of the ramps and slide. It usually takes the form of a shallow groove across both sides of the ramp and on the slide where the latter rests in the two hundred yards position. It is caused by the unthinking and unnecessary slamming down of the leaf sight from the raised position.

An appreciable amount of the inaccuracy at two hundred yards range is due to this avoidable cause.

The fit of the bolt in the body of a rifle can have an appreciable effect on accuracy. The reason is that before the weapon leaves the factory it is subjected to a proof which requires the firing of a charge giving a pressure of 24 tons to the square inch in the chamber. (The pressure given by the ordinary service charge used in mark VII ammunition is approximately 20 tons.)

This causes the lugs of the bolt to set back into the shoulder and cam of the body so that the two components take up a definite relation one to the other. The sighting of the rifle is adjusted to this relationship and, if it is disturbed, as would be done by assembling the bolt of another rifle to the one under consideration, shooting accuracy will suffer. There are, of course, plenty of occasions when the bolt which has been proved to a rifle has to be condemned and a new one assembled. It is not usually practicable to reprove the weapon with its new bolt, but steps should be taken to see what adjustments are required to the fore-sight to compensate for the altered conditions.

The soldier is not expected to correct defects in the accuracy of his weapon by the addition, or deduction, of appreciable amounts of elevation due to the range at which he is firing, or by laying off his target. If a good shot on an average day cannot make decent shooting with the elevation due to the range while laying on his mark, then there is something wrong with the rifle and the sooner the nearest expert is consulted the better.

The condition of the barrel of a rifle is of the first importance where accuracy is concerned. A new barrel when it leaves the factory is as nearly perfect as it can be. It is free from cuts, scratches, tool marks, corrosion, metallic fouling (nickelling) and is truly cylindrical and perfectly straight.

With reasonably careful treatment the barrel should remain free from cuts and scratches while in service. They are usually caused by the improper use of the gauze, or clumsy attempts to remove an obstruction such as pull-through cord or weight jammed in the barrel, or by the use of a gritty piece of flannelette. Their chief danger is the formation of a seating from which corrosion may start and at which metallic fouling may collect.

Both corrosion and metallic fouling have distinct effects on accuracy and care should be exercised to prevent anything tending to their encouragement.

Corrosion is responsible for a great deal of inaccurate shooting. It materially aids the adherence of metallic fouling, and improper attempts to remove it lead to uneven wear in the barrel and consequently to further deterioration of the accuracy of the arm.

Corrosion is due to the occlusion of the powder gases in the steel of the barrel and, later, to their exudation. The phenomenon can be explained as follows:—

A piece of steel, such as rifle or gun barrel, is not the absolutely rigid structure it appears to be. Actually it comprises number of

particles in close contact. This contact, however, is not so intimate as to preclude the penetration of the cordite gases into their interstices if the conditions for such entrance are favourable.

The generation of heat in a rifle barrel, such as occurs when a cartridge is discharged, causes expansion and this expansion of the metal furnishes the gas with the chance it requires for its penetration.

Immediately after the explosion, the steel commences to cool. The particles of the outer skin at the interior face of the barrel, as they are in closer contact with the atmosphere, lose heat at a greater rate than those more remote from atmospheric influence. The result is that the gas is trapped, or occluded, between the cooling outer skin and the hotter inner layers. Now, cordite gas has an affinity for water and consequently will endeavour to push its way to the outer skin in order to combine with the water of the atmosphere, and this action will be assisted by the contraction of the metal as it cools down. As soon as it succeeds in attaining this combination and the progress may require a few hours only—the barrel takes on a blackened appearance and corrosion has formed.

Another factor which has a very important bearing on the question of accuracy is nickelling, or metallic fouling. Particles of the cupro-nickel of the bullet are deposited in the bore and the deposit may easily become of such an order as to upset the shooting of the rifle altogether. Nickelling has always been much more prevalent in India than at Home. It is not a defect peculiar to either Indian made rifles or ammunition, as experiments have proved that English Standard ammunition has a rather greater tendency towards nickelling in this country than has that manufactured in India.

It has been established that the temperature of the burning cordite of the charge is a definite factor in the deposition. The more quickly it burns, the greater is the likelihood of an increased amount of fouling. The rate of burning, and consequently the temperature, is very carefully controlled by what is known as the "blend" of the cordite in the charge.

The Indian ammunition contains a blend allowing a slightly slower rate of burning than is the case with English ammunition which explains why the former does not part with its nickel quite so readily as the latter. The difference, however, is very small and can only be detected by careful standardized tests.

This blend is, to all intents and purposes, a standard factor, in all ammunition by the same maker. But in Mark VII ammunition, in order to obtain the required velocity, the "blend" has to be such, that some nickelling must occur under the very best conditions, for the case is not large enough to contain a heavier "blend" with its lesser heat in producing effect. Expert opinion inclines to the belief that nickelling cannot be obviated in the present design of ammunition. The possible cure may lie either in a new bullet, which will not deposit particles of metal under the conditions found in the Service; in the introduction of a slower burning, and therefore cooler, propellant; or in an antidote such as tin foil, which might be amalgamated with the charge. These possibilities are all being explored at present.

Although some nickelling appears to be unavoidable with the present design of ammunition, a great deal can be done to eliminate its effects on accuracy, firstly by taking the greatest possible care to preserve the condition of the interior of the rifle barrel and secondly by keeping the ammunition as cool as possible.

The condition of the interior of the barrel is of first importance. It has been definitely shown that a barrel with a surface even slightly roughened picks up nickelling at a much greater rate than one in good condition. Cuts, scratches and similar blemishes form convenient centres round which the fouling collects. A corroded barrel is, perhaps, the best medium of all for the culture of a really good crop. It behoves everyone, therefore, to use the utmost efforts to avoid corrosion and, where this is impracticable, to ensure that it is removed in such a manner as will produce the minimum roughness of surface.

The temperature of the ammunition is of importance for experiment has proved that certain rifles will accept nickelling at lower temperatures than others. For instance one barrel may accept a certain amount at an ammunition temperature of 70° F. whereas another will not take up the same amount until the temperature has reached 100° F.

The barrels will have a better chance to resist nickelling if the ammunition is protected, as far as is practicable, from high temperatures. Exposure to temperatures such as that of the hot weather sun tends to render favourable the conditions which assist the production of fouling.

It must always be remembered that a perfectly good rifle will accept nickelling from the best ammunition, if the latter is

allowed to bake in the sun. More complaints of nickelling are received from hot stations than from those enjoying cooler climates. It is, therefore, a matter of considerable importance to keep the temperature of the ammunition as low as is practicably possible but correct maintenance of the barrel will have a much greater effect in minimising fouling.

Ammunition and rifles when first issued from the Factory are both as good as they can be. The nickel producing qualities of the former do not alter, but the nickel accepting proclivities of the latter are immensely enhanced by negligence in the care and preservation of the barrel.

It was stated above that the barrel, when new, was truly cylindrical and, if accuracy is to be maintained, it must be preserved in this condition. There are several causes which tend to vitiate the original standard but, with the exception of improper cleaning they can almost be left out of account.

The unintelligent use of the gauze wire piece is a fruitful source of avoidable damage. A patch of corrosion or nickelling is detected in a certain area of the barrel and the owner proceeds to scrub that patch with the gauze until the defect is no longer evident to him. In all probability one or other, or both, of these troubles will occur again at the same point and a similar cleaning operation will be undertaken, so that in time,—and in a comparatively short time,—an appreciable amount of metal is removed from the barrel at the affected area, and the barrel has lost its cylindrical condition.

Now if this condition, as a result of cleaning, occurs in one or two areas of the barrel it is evident that the bullet is going to be seriously disturbed in its progress to the muzzle. In effect it first drops into a hole and then has to climb out of it, and it may have to repeat the feat two or three times before it emerges. All of this is bad for accurate shooting.

The barrel should be cleaned "parallel," *i.e.*, the gauze drawn through from one end to the other.

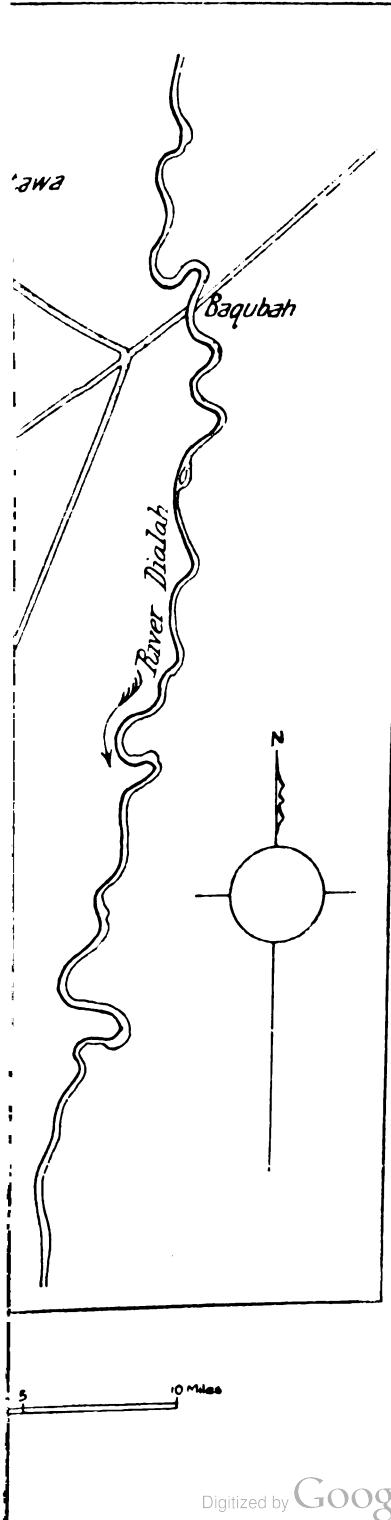
A good deal of wear could be avoided if officers and non-commissioned officers were taught to detect corrosion in its earliest stages. The less there is, of course, the easier is its removal and the greater the chance of maintaining the barrel in proper condition.

Further, the sooner corrosion is discovered, and remedied, the less will be the chance of the barrel accepting serious nickelling.

In conclusion it is well to emphasise again that the rifle is a delicate piece of mechanism which, if the best results are to be obtained, requires at least as much, intelligent care as any other mechanical contrivance. Its design provides for every reasonable form of rough usage but, naturally, the less it experiences the better will it function.

If, just before carrying out musketry, rifles were overhauled by a competent armourer and all minor defects eradicated (the cumulative effect of seemingly unimportant defects may be very considerable), there is no doubt that some units would ensure to themselves a better chance of making good returns than they do at present.

SKETCH A



A COLUMN IN MESOPOTAMIA.

By Major and Brevet-Lieut.-Colonel H. E. Crocker, M.G., D.S.O.

The XIII Division arrived at BAGHDAD on the 11th March 1917, and bivouacked for the night at ES SALEKH, about 2 miles North of the city.

The next day, our Brigade, the 40th, advanced to DAUDIYEH on the Tigris. (See sketch "A.") Our Battalion formed the Advanced Guard, a most arduous task, as it proved to be, for there was no road that we knew of, and we had to march straight across country on a compass bearing. The ground was cultivated, and intersected in all directions with nullahs, whose high banks offered a serious obstacle to our advance. Luckily, most of them were dry, and it was a simple matter to dig a roadway through the banks, and fill them in. A few were full of water and here the R. E. Section had to exercise their ingenuity in constructing bridges from any material they could come across, of which there was little to be had beyond palm-trees.

We reached DAUDIYEH unopposed, though parties of the enemy could be seen on the opposite bank of the River. They were easily dispersed by a few well-aimed rounds from our battery.

We had no definite news of the enemy, but heard that he had a force of several battalions, and some cavalry of sorts ahead of us.

On arrival at DAUDIYEH our Battalion formed the outposts. The night passed quietly, and in the morning there was no sign of the Turks.

Our Brigade had received orders to occupy the line of the TIGRIS from KASRIN to DAUDIYEH. (See sketch "A.") Our Battalion was to push on at once, and occupy KASRIN and DOKHALA, while another battalion occupied KHAN JEDIDA, South of DOKHALA.

We were sent on accordingly with a Troop of Yeomanry, a Section of the Brigade Machine Gun Company, a section of the Field Co. R. E., and a section of a Field Ambulance.

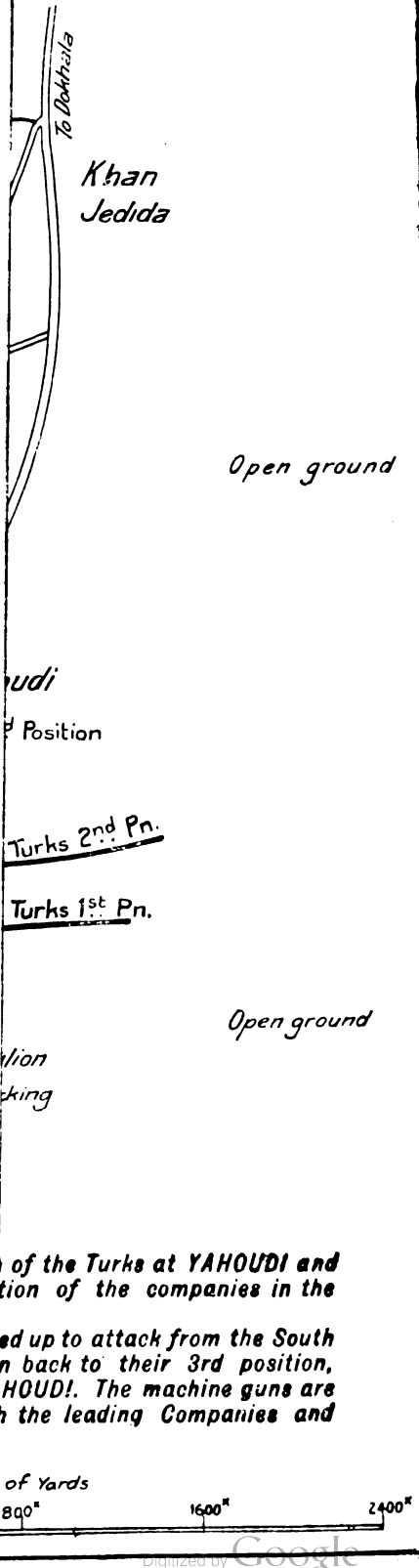
We started next morning with the Yeomanry and one Company as Advanced Guard. There was some delay at the start as we were waiting for the Yeomanry to put in an appearance. I noticed a Sergeant with a few troopers, and asked him when the troop would arrive. He replied "Here we are, Sir. The troop is present and correct." We started off gaily, the Battalion destined for Khan Jedida following in rear. We found a rough road which led in the right direction, and the going was quite good. None of that awful dust which would prove to be such a curse later on.

On approaching Khan Jedida the Yeomanry were fired on, and a trooper came galloping back with a message to say that a party of Turks was concealed in a nullah S. and S.-E. of the village. Shortly afterwards the Advance Guard company reported that they were under fire from the same direction. There did not appear to be any serious opposition, so the Yeomanry were sent on to watch the right flank and front, and the advance guard were ordered to attack at once. Another company was sent up to support them. Meanwhile, the remainder of the column moved up under cover of the high banks of a nullah to a position where they would be handy when required. The Machine Gun Officer brought his guns into action on our left flank, where he could support the attack. The advance guard, with the supporting company, were working their way forward, taking advantage of any cover they could find. There was, however, very little; the country, like the rest of Mesopotamia, being as flat as a billiard table, and the only cover available was that afforded by the high banks of irrigation nullahs.

As soon as the attack started, the Turks opened a heavy rifle fire, and it was possible to form some opinion as to their numbers and position. They appeared to be holding a line of nullahs running from the River, S. of the village with their left, or outside flank, thrown back. To judge by the volume of their fire, they must have been fairly numerous.

The leading company, with its left on the high bund along the river, pushed forward boldly, covered by the fire of the machine guns posted on top of the river bund. The supporting company followed on in rear, and slightly to the right. Very soon the Turks were to be seen falling back on to the village, covered by a small party left behind till the last moment, and as the leading company advanced, these heroes could be seen running back to join their comrades.

SKETCH 8



The enemy now held the outskirts of the village, high mud walls loopholed for rifle fire, and quite bullet proof.

The Yeomanry, who had by this time worked up to the right of the village (*i.e.*, the Eastern flank), reported that there were no signs of the enemy in that direction. A determined attack seemed the only thing to be done. Accordingly the machine guns were pushed up along the bund to where they could bring a heavy fire to bear on the village. The leading company was ordered to make a demonstration in front, and a third company was sent up to push an attack from the S.-E., covered by the fire of the leading company and machine guns—the original supporting company from its position on the right rear of the leading company acting as a support to both that and the third Company.

The fourth Company remained in reserve.

A report of the situation had in the meantime, been sent to Brigade Headquarters, and the second Battalion was placed at our disposal in case of trouble. However, they were not required, greatly to their disappointment.

The effect of the third Company's advance was now making itself felt, the enemy's fire slackened considerably, and we could see a number of men embarking in launches North of the village, and crossing over to the right bank. The attack was pushed on all sides in face of a heavy fire from the Turks' rear guard. The Machine Guns moved up along the river bund till they could bring a heavy fire to bear on the launches. Unfortunately, they were unable to get up in time to prevent the enemy from crossing the river, but such was the accuracy of their fire, that the launches had perforce to be abandoned. They floated down stream, and were picked up by the Battalion behind us. One, a fine steamer, had several hundred rifles on board. Her value was subsequently assessed at £1,200.

We were delighted to receive a special telegram of congratulation from the Army Commander.

Apparently only a small party of the enemy had succeeded in crossing the river, the main body had fallen back from KHAN JEDIDA on to the villages of KASRIN and DOKHALA. (See Sketch B.)

Our leading Companies moved up to the village of KHAN JEDIDA, which consisted of a number of compounds of varying size, enclosed by mud walls about 14 feet high, 3 feet thick at

the base and quite bullet proof. The houses were built of mud, with a roof of reeds laid on beams, and coated with a thick layer of mud.

Our next task was to clear the village of the enemy which was done as follows:—One company was sent along the river bund, a second through the centre of the village, and a third round the outside (Eastern) edge, each company finding its own supports. The fourth company was retained in reserve at the South edge of the village.

The party of the enemy who had crossed the river now opened a heavy rifle fire on the village. They were at once taken on by two of our machine guns, and their fire soon ceased. The Arabs were very friendly, and they all flocked out to see the fun, and took the greatest interest in the proceedings. The fact that they were under a heavy and fairly accurate fire from the opposite bank of the river, barely 300 yards away, did not appear to disturb them in the least, each bullet, as it went smack into the mud walls close to them, was greeted with roars of laughter.

There was not much opposition to the companies who were working their way through the village. Perhaps this was just as well, as a skilfully organised resistance by determined men could have held us up for a long time, and caused numerous casualties. Only a few men were left behind as a Rear Guard, while the remainder fell back to the next villages, HAWESH, DOKHALA and KASRIN.

Our advance had now reached the Northern edge of Khan Jedida, and the companies were very much scattered. Keeping touch was a matter of great difficulty among the houses and compounds as it was impossible to see anything on account of the high mud walls. There were a good many narrow alleys running in all directions, which allowed a certain amount of lateral communication.

The time was now 3-30 P.M., and it would be dark soon after 5 P.M. The enemy were strongly entrenched S. of the villages of Dokhala and Kasrin, which extended about two or three miles along the river bank, and about a mile to a mile and a half ahead of us. The battalion, as I have said, was very much split up and disorganised, only one company, which had been held in reserve being in hand. The first thing to do, therefore, was to collect the battalion, and this took some time. Owing to the lateness of the hour, and the fatigue of the men (they had been marching and fighting, carrying their packs since about 8 A.M. and had no food

since leaving the bivouac at about 6-30 A.M.) it was decided to halt in our present position for the night, and to attack the next morning.

A strong outpost position was accordingly taken up along the N. edge of Khan Jedida, with the Yeomanry out as a cossack post on our right front, some way up a road we had discovered leading along the Eastern edge of Dokhala.

The local Sheikh with all his staff and a crowd of followers came out to see us, and appeared to be very friendly. He told us that the Turks numbered 350, and were all cavalry, and that only a small party of dismounted men had crossed the river. These numbers were probably exaggerated, but we had no means of finding out the correct figures. He also told us that the Turk's casualties were heavy.

Our own casualties were nil, which was rather wonderful taking into consideration the volume of the enemy's fire. There had been very little cover for the advance but the men were well extended, and had pushed on as hard as they could go, taking advantage of every scrap of cover they could find. It was doubtless this rapid advance that was responsible for there being no casualties, and we were all convinced that therein safety lies.

If the village had been resolutely held, our difficulties would have been greatly increased, and our casualties heavy. Each house and compound formed a little fort, which lent itself admirably to defense, and would have required a separate attack. The mud walls, baked to the hardness of brick by the fierce tropical sun, were impervious to machine gun and rifle fire. The only entrance to these compounds was by a small doorway, closed by a wooden door, kept in place by a heavy beam let into sockets in the walls. Each street and alley could have been commanded from the house tops, and a few machine guns judiciously placed, could have swept all approaches. Taking everything into consideration, we were lucky that we did not encounter much opposition in the village.

It may be said that we ought to have pushed on at once, and attacked Kasrin while we had the enemy on the run, but the objections to this were that daylight would only last for another two hours, the men were tired and much scattered, and even if we had forced his first line of defence, we should have found ourselves, as night fell, involved in an intricate maze of villages extending for nearly two miles, similar to the ones we had just captured, with an enemy of unknown strength in front of us

Under these circumstances it was judged advisable to remain in our present position, get the men together, and to make an attack at daybreak.

Our outposts occupied the N. edge of Khan Jedida, with our left on the river, and our right thrown back along the East edge of the village. The ground in front was watched by patrols all night.

The night passed quietly, and at daybreak a heavy burst of fire from a long line of nullah in front showed that our friends were still there. We could see a few heads bobbing about, but the trenches were cleverly sited, and it was impossible to form any estimate as to their numbers.

A report of the situation was sent to Brigade H.-Q. at daybreak, together with the proposed plan of attack. In reply we received a message to say that one gun from the battery with our Brigade was coming up to join us, and that the attack was to be delayed until it arrived.

In the meantime everything was done to try and discover the position of the enemy. The Yeomanry reported that various trenches and nullahs S.-E. of the village and across the road were occupied by his riflemen, who opened a heavy fire whenever they ventured within range and prevented anything like close reconnaissance from being carried out.

By means of rapid bursts of machine and Lewis Gun fire directed at various points which appeared to be occupied, we were enabled to draw his fire, and to ascertain roughly the extent of his position.

His line appeared to run from the river across the Southern edge of the village, with his left thrown back among the date gardens. We specially noticed heavy fire from the direction of the road, which led us to suspect that he had a strong line of trenches across it, in the hope that we would advance in that direction. This indeed proved to be the case, as we subsequently discovered.

Orders for the attack were given out, and explained to everybody, and the Battalion was formed for attack under cover of the date gardens where we had passed the night. The men had had a good night, and were rested from the fatigue of the preceding day. They had a good breakfast, and were in great form.

The plan of attack was, briefly, as follows:—[Sketch C.]

The natural line of attack would have been astride the road, but this, as I have said, seemed to be strongly defended. It was evident that the enemy expected us to advance in this direction, so we decided to leave the road severely alone, and to advance from the left of our position, with our left on the river. Here we could get a certain amount of cover among some small mounds and palm trees, both from the front and from the right bank of the river, should any Turks happen to be there.

The river, moreover, secured our left flank from counter-attack which was probable against our right flank. The reserves were, therefore, to be echeloned to the rear, and to the right of the attacking companies, so as to be ready to deal with any such counter-attack if it took place.

The Yeomanry were to watch the right flank for any signs of hostile reinforcements, and also to look out for a counter-attack from the village. The gun, on its arrival, was to come into action at the N.-E. corner of Khan Jedida, well concealed among the broken ground, ready to shell the enemy's trenches, and also to deal with any counter-attack.

The machine guns were to come into action among some gardens by the river on our left flank, and fire obliquely across the front of the attack. They were to move up, 2 guns at a time, with the leading companies, as opportunity offered—but the machine gun officer was given a very free hand to do what he considered best, keeping in view that his duty was to support the attack, and to maintain a heavy fire on the enemy's trenches.

The section R. E. was to remain behind, and to move forward as soon as the enemy's position had been carried. As there did not appear to be any immediate prospect of its being required it was considered advisable to leave it under cover until its services could be utilised.

The gun arrived about 9-30, and came into action as I have already described. A few minutes were allowed for the Turks trenches to be well searched with shrapnell, and then the attack suddenly started. The battalion had been so well hidden immediately prior to the moment of starting, that the leading company had gone some distance before they were fired on. The enemy evidently expected us to advance along the road, especially as our gun was firing from that quarter, and our advance on the left appeared to come as a surprise.

We took full advantage of this to push forward as rapidly as possible. Bullets soon fell near us, and the leading platoons began opening out into widely extended lines, one after the other, as they came under fire. The mounds and rough ground on the left afforded good Lewis gun position, which were taken full advantage of to aid the advance.

The machine guns on our left were firing for all they were worth: there is something extraordinarily exhilarating in the sound of one's own machine guns: it gives one such a feeling of help and comradeship. At the same time there are few things so unpleasant as the enemy's machine gun fire.

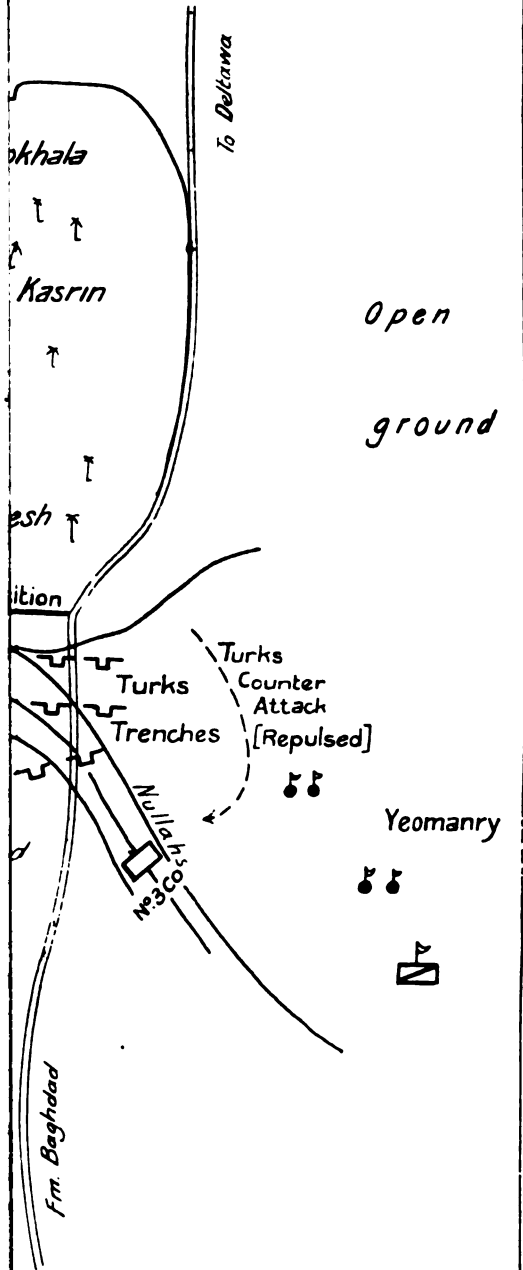
Our gunner, too, was firing away merrily, and we could see his shrapnell, beautifully timed, bursting all along the Turks' trenches.

The leading companies were, by this time, fully extended, but making their way forward steadily. We suddenly saw a strong counter-attack developing against our right flank, precisely where we expected it. With great promptitude our gun ceased firing on the trenches and opened a rapid and accurate fire on the advancing Turks whom we could see leaving their trenches, and running forward, with the evident intention of cutting in on our right flank. Our leading company of the reserves now moved out to meet this counter-attack, sending two platoons in advance, with the remainder of the company in close support. After a brief fire fight the counter-attack was stopped, and the Turks fell back to their main line S.-E. of the village.

About this time the enemy's rifle fire seemed to increase in intensity all along his line, and the leading companies were held up. They had occupied some mounds and rough ground on their left near the river, but there still remained several hundred yards of bare open plain to be crossed. The enemy had evidently strongly reinforced this sector of their line, and were quite prepared for the impending attack in this direction.

At this point an advance from the S. E. seemed to promise the greatest hope of success, and accordingly, it was decided to move up the supporting company, which had just repulsed the counter-attack, and press the attack against the S. E. corner of the village.

This company had reformed under cover of the high banks of a nullah and was in an excellent position for delivering this



on KASRIN and DOKHALA. The
 have been held up, and the third
 attack against the S. E. corner
 counter-attack has been repulsed.
 fighting along the south edge of the

Scale of Yards

1600

2400

3200

attack. Its advance would be screened to a great extent from the main Turkish line of defence by several nullahs running parallel to the attack.

It now formed up while the fourth (reserve) company was moved slightly to the right so as to cover the gap between the third company—now about to attack—and the two leading companies, whose advance had been held up. Covered by the fire of the gun, machine guns, and the leading companies, this third company dashed forward against the bend in the Turkish trenches round the S.-E. corner of the village. This attack decided the day, and the Turks at once began falling back, leaving a strong rear party. Our whole line now advanced, but before we could reach our objective, the Turks had all gone. They had had their horses in readiness close in rear, and they had ridden off without waiting to defend the villages.

According to the Arabs their strength was between 300 and 400 men, but we were unable to get any confirmation of this. Our casualties were again nil, for which we were exceedingly lucky. The Arabs swore by Allah and the Prophet that the Turks casualties were heavy, but all we could find was one dead officer.

The Yeomanry were sent on to follow up the enemy and to watch the road which ran past the village towards Deltawa. The reserve company was hurried forward to occupy the Northern edge of the village, while the remainder of the battalion reformed. A message was sent to the gunner subaltern to tell him to bring up his artillery to a position from which he could command any approach against our right front.

An amusing incident now occurred about this time which shows the difficulties one had to contend with in this country.

A trooper came suddenly galloping back, *ventre a terre* with a message from the sergeant in charge of the Yeomanry to say that several columns of infantry were advancing against the village.

In view of the news that we had received to the effect that a force of about 600 infantry were reported to be in the vicinity of Deltawa, this appeared to be quite probable.

The message was accordingly passed on to Brigade H.-Q., and to the battalion at Khan Jedida, who were ready to help us in case of need.

A mounted officer's patrol was at once sent out to see what was really happening, and in the meantime, while we were

waiting for his report, the Northern edge of the village was hastily occupied by the company which had been sent on. An urgent message was sent to the gunner to bring up his gun as soon as possible. The machine guns were brought into action in the front line where they could sweep all approaches. Runners were sent to the remaining three companies, with orders to get their men together and to rendezvous in an open space from where they could readily reinforce the firing line.

At length a message came back from our officer's patrol. He had reconnoitered to some distance to the front, but could find no signs of the enemy. He had, however, seen several large flocks of sheep, which, seen through the mirage, looked exactly like columns of infantry.

It was a long time before we heard the end of this. The mirage is most confusing, and distorts objects in a most extraordinary manner. Men walking appear about 20 feet high, and mounted men appear up in the air. Whole tracts of land appear to be covered with water, and often places at distance can be seen at a considerable height when in normal times they are not visible at all.

The writer has often seen flocks of sheep which looked exactly like a column of infantry on the march. One could see gaps in the column gradually being filled up, and mounted officers riding up and down the column.

This was simply the effect of the mirage which, drifting slowly along, gave the impression of moving troops, and the shepherds appeared like mounted men.

We had now reached our objective, and a strong position was taken up for the night with our left on the river, along the N. and N.-E. edge of the village, among mounds of earth and date gardens, the walls of which were loopholed.

Communications were improved through the village which necessitated the repair and construction of several bridges over irrigation canals. Here the R. E. Section proved themselves invaluable, and made a first class job of the work. We found several brick kilns with a plentiful supply of the large flat bricks usually used in the country, which proved very useful.

The Yeomanry were pushed far out along the Deltawa road as a cossack post. As night fell, officers' patrols from the Infantry were sent out, and every precaution was taken in case of an attack during the night.

Our Transport Officer had arrived with our ration carts, and everybody had a hard-earned dinner, which we thoroughly enjoyed.

About 1 A.M. the Brigade rang us up to say that a force of 600 Turks was advancing from the direction of Deltawa, and that we should probably be attacked at dawn. The Brigadier particularly wanted to know if we were quite happy, and confident to deal with this attack?

Needless to say, the answer was an emphatic affirmative. This message was at once repeated to the Outposts and the Yeomanry. Officers' patrols were sent out about 3-30 A.M., with orders to push out well to the front, and to remain out till after daylight. The whole column stood to arms at 4 A.M. ready for the threatened attack.

However, it proved to be a false alarm, and the patrols returned about 7 A.M., without having seen any signs of the enemy.

A few days afterwards we were reinforced by our Pioneer Battalion, and the remainder of the Yeomanry Squadron.

Reconnaissance was now undertaken on a large scale, and a line of observation was taken up between the Tigris at Scindiyeh, and the Dialah at Baqabah, but the Turks seemed to have cleared out of this area, and we saw no more of them.

This brought our operations to a close for the time being. We remained at Kasrin for a few weeks longer repairing the river bund to protect the country from floods, a work in which the Arabs all took part and then finally rejoined the Brigade when the general advance took place at the end of the month.

These two days' operations bring out several points of interest, which may be summarised as follows:—

THE FIRST DAY.

1. The action of the Advanced Guard Commander, who pushed on boldly as soon as contact with the enemy had been gained, succeeded in driving him back to his second position, thus clearing the way for the main body. It was a risk, but a justifiable risk, in view of the near approach of the remainder of the Battalion.

2. The successful application of "Soft spot tactics." Companies which were held up by enemy fire were left to hold on to the positions they had gained, while the main attack was pushed home at a point which turned the Turks' flank from a direction where strong opposition was not likely to be encountered.

3. The prompt advance and ready action of the Machine Guns, working up the river bund well to a flank, afforded great assistance

to the attacking Infantry, and, incidentally, were entirely responsible for the capture of the two launches. They were, in addition, able to keep the right bank clear of the enemy, and prevent him from bringing what might have been a very effective fire against the left flank of the attack.

4. The determined advance of the Battalion caused the Turks to abandon strongly entrenched positions along high banks of nullahs, where they could have delayed the advance and inflicted heavy casualties if resolutely handled.

5. The decision to halt on the North edge of Khan Jedida at 3-30 P.M., instead of pushing on at once may be open to criticism.

On the one hand the enemy were falling back, without, however, having been roughly handled. On the other hand our men were tired and scattered. They had had no food for a considerable time. It would have been dark in two hours at the outside, probably sooner. It would have taken some time to collect and feed the men prior to a further advance. By the time the attack had actually started, there would have been but little daylight left, and it is probable that, as night fell, the Battalion would have found itself hemmed in the narrow lanes which intersect the ordinary Arab village in all directions, where advantage of numbers would have been lost, and where every house and corner might have concealed an ambush.

In this case time was not of vital importance, and there was no material objection to "playing for safety," and holding on to the position which had already been captured.

Here, the men could be reorganised, rested and fed, ammunition supply replenished, and complete preparations made for a fresh attack on the morrow.

True, the Turks, might have been reinforced during the night, but in view of the general retreat of their forces from Baghdad in a northerly direction, this was not considered to be probable.

THE SECOND DAY.

1. The great assistance given to attacking Infantry by even one gun, close up in support, was remarkable. The moral effect was great, and the sight of the shrapnel bursting over the enemy's position acted like magic on the men. Prior to starting the attack many of the men had seen the gun arrive and come into action, and had had an opportunity of talking to the gunners. This, and the knowledge that the gun was close up behind them, was an enormous

incentive to the men to drive home the attack, and would have been ample compensation for any risk of loss to the gun itself.

2. The Machine guns afforded valuable assistance to the attack by searching the enemy's positions with well-aimed oblique fire. Taking advantage of the high command afforded by the river bund—at that point about 20 feet high—they were able to fire over the heads of the Infantry on several occasions. They worked forward in echelons of sub-sections, leap-frogging through each other. This river bund afforded a magnificent position, from which they double the roll of supporting the attack, and at the same time sweeping the opposite bank, and clearing it of any Turks who might fire into our left flank.

The large number of men required to carry the ammunition for the guns constituted a serious drain on the Battalion, already considerably under strength. For some reason or other, no mules were available and every round had to be carried by hand. The fire of the machine guns was of such great value, that it was considered preferable to reduce the bayonet strength of the Battalion, rather than forgo the advantages conferred on the attack by the Machine Gun support.

3. Lewis Guns.—Throughout the two days' fighting, Lewis Guns remained with their Platoons, and were not brigaded under the Company Commanders. In view of the fact that a section of Machine Guns was covering the advance, and, moreover, taking into consideration the close nature of the fighting that might be anticipated among the houses and narrow lanes it was judged advisable to leave them under their own commanders.

Later, when fighting over flat and open country, they were often brigaded. The guiding principle being to leave the guns with their own Platoons as long as they could be used successfully to help on the advance of the Platoon. When, however, owing to the nature of the ground, they could not be used, they were, as a rule, collected under the control of the Company Commander on a flank where they could be employed to the best advantage.

4. Owing to Troop of Yeomanry being greatly under strength, mounted officers from the Battalion were sent out on reconnaissance on several occasions. They proved of great value both on this, and subsequent operations when mounted men were not available. These duties called for riding capabilities of no mean order if the reconnaissance is to be carried out in a practical manner.

CAVALRY IN MOBILE WARFARE.

*By Lieut.-Colonel C. B. Dashwood Strettell, Commandant,
11th Prince Albert Victor's Own Cavalry F. F.*

The characteristics and capabilities of Cavalry are described, in general terms, in F. S. R., Vol. 2, section 11, and, in more detail, in the first chapter of Vol. 2 of Cavalry Training.

For some unknown reason Cavalry has come to be looked on, by the rest of the Army, as almost a technical arm and, possibly on that account, there is considerable ignorance, among officers of other branches of the Service, of the capabilities of Cavalry. As long as such ignorance exists, there must be a corresponding lack of knowledge of how to handle this arm.

The answers given to questions about Cavalry, by the large majority of candidates at promotion examinations, show ignorance which is deplorable.

It would appear that much of this lack of knowledge is due to the following reasons :—

- (a) Owing to the terrain, and other obvious reasons, there were few opportunities for Cavalry action in the Western Theatre of the Great War, the theatre in which the vast majority of officers served.
- (b) Few officers of the other arms were personal witnesses of Cavalry actions in any theatre of war.
- (c) The majority of the Cavalry used in the Palestine Campaign of 1917 and 1918 and in Mesopotamia, all through the war was Yeomanry, Australian and Indian so that few regular British Cavalry officers took part in the successes obtained by that arm in those countries.
- (d) The atmosphere has got somewhat fogged by the intense propaganda of the enthusiasts for Mechanical Warfare.

As regards the Western Theatre of War, the devoted manner in which our own Cavalry covered the retreat from Mons is an

example of what Cavalry [can do in a War of Manœuvre in a highly civilised area. On the other hand the Germans must have regretted the day when they abolished their Cavalry, as such, in France. A very distinguished Infantry Brigadier, who commanded the Brigade on the left flank of our Fifth Army in the retreat in March 1918, has put it on record that he will never forget the dismay which he experienced, on the fifth day of that retreat, when he was told that German Cavalry were threatening his left flank.

Fortunately the report was erroneous, but it is interesting to speculate as to what would have been the result if the Germans had possessed a Corps of Cavalry to throw into the fight on the fifth day of the great drive: the history of the world might have had to be rewritten.

It is however to the campaigns in Palestine and Mesopotamia that one must turn for the best examples of Cavalry action during the late war because, as the book says, "The characteristics of Cavalry require Mobile Warfare for their full development."

The Chief of the Imperial General Staff has laid down that the Army must be trained with a view to Mobile Warfare and consequently examples of Cavalry work taken from these two campaigns may prove instructive.

On November the 13th, 1917, a notable Cavalry action was fought at EL MUGHAR, in Palestine, by the 6th Mounted Brigade of Yeomanry under Brigadier-General Godwin, now the Major-General Cavalry, in India.

The events leading up to this action are briefly as follows:—

The capture of BEER-SHEBA in October 1917 was quickly followed by the fall of GAZA and the British Cavalry were utilised to pursue the defeated Turks in the hopes of cutting off the whole of the troops which had been in GAZA and in position to its East.

The steady resistance of the Turkish rearguards coupled with the delay caused, to the Cavalry, by the extreme scarcity of water prevented the consummation of these hopes and the Cavalry rôle became a direct pursuit.

During the 10th and 11th of November the Turkish resistance stiffened and it became obvious that their main body was in position with the object of holding us off Junction Station—

the vital centre of the railway connecting JERUSALEM with the main railway to the north.

This position ran almost due North and South from EL KUBEIBE to BEIT JIBRIN, a distance of about twenty-five miles, and it lay parallel to and about five miles west of the railway the enemy was defending. The right flank rested on the steep ridge connecting EL KUBEIBE, ZERNUKA with EL MUGHAR. The sketch map will show the ground over which the action of EL MUGHAR was fought.

The country was completely bare, as all the crops had been gathered in. In order to save ground fit for cultivation, and for reasons of safety, most of the villages in this area are built on the tops of rocky hills and they are invariably surrounded by trees, cactus hedges, and gardens, the latter encircled by stout mud walls.

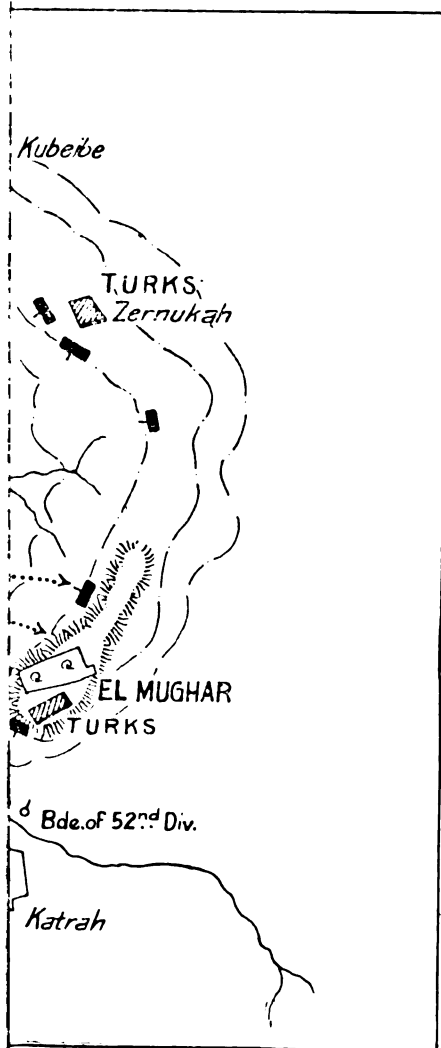
All villages, which are so situated, command the surrounding country for a considerable distance and form admirable strong points, very difficult to reduce without the aid of Heavy Artillery. The village of EL MUGHAR, on its high and rocky ridge, is one of the most prominent of these hill strongholds.

On the morning in question, YEENAH was found to be held lightly and the 8th Mounted Brigade pushed through and advanced to attack the villages of ZERNUKA and KUBEIBE, on which rested the right of the Turkish Line. The Turks were found to be in force and no substantial progress could be made in the face of heavy machine gun fire. An effort of the 22nd Mounted Brigade to push between ZERNUKA and EL MUGHAR was also foiled.

In the meantime a brigade of the 52nd Division attacked KATRAH and, after making a fine bayonet charge, took it and a large number of prisoners. They then attempted to advance up the slope to EL MUGHAR but they were completely checked by an intense fire, which was opened on them, from rifles and machine guns, concealed in the gardens surrounding the village, and from guns farther North. It was soon apparent that they could not hope to cross the wide stretch of ground in front of the village and they were withdrawn into the shelter of the Wadi. The Division then asked the Yeomanry to co-operate by attacking from the West, and the 6th Mounted Brigade was detailed for this purpose.

SKETCH No. 1.

ACTION of EL. MUGHAR.



From his position at EL GHEYADAH, in reserve, General Godwin had observed that the Infantry advance was not progressing, and had anticipated an order to co-operate. In consequence he had already got the Bucks Yeomanry into the WADI JAMUS, about 1 mile S.-E. of YEBNAH, and had sent officers' parols to reconnoitre the approaches to EL MUGHAR; the latter had confirmed his opinion that the enemy position could only be reached by a mounted attack.

The country was as bare and open as that over which the infantry had failed to get home, but, on the other hand, the absence of obstacles favoured a galloping attack and, though the distance, about 2 miles over the open, was considerable, there appeared to be a good prospect of success if the attack was well supported by the R. H. A. and machine guns.

He therefore made the following dispositions. He brought up the Dorset Yeomanry and galloped them across the open, in small parties, into the shelter of the WADI JAMUS. The Bucks were ordered to direct their attack on the ridge just North of the village of EL MUGHAR, with the Dorsets immediately on their left. The Berks Yeomanry were placed in reserve near the south-end of YEBNAH, while the Berks Battery were at BESHSHIT.

The left of the attack was covered by the 8th Mounted Brigade, who were still attacking ZERNUKA.

The Machine Gun Squadron, less 2 sub-sections, taking advantage of the broken ground S.-E. of YEBNAH, got into the WADI EL GHOR and worked their way along it to a position about 1,000 yds. S.-W. of EL MUGHAR. Directly General Godwin heard his machine guns open fire, he gave the order to advance and the two regiments scrambled up the steep sides of the WADI into the open and trotted forward in open order, in column of squadrons at 200 yards distance, two machine guns on pack accompanying each regiment on the flank.

The moment the cavalry came into the open a tremendous burst of fire broke out, every weapon the Turks had in action was turned on to them while the R. H. A. Battery and the machine guns poured a rapid fire on to the ridge. The regiment trotted quietly across the open, until they were about half a mile from the enemy, when they broke into a canter and swung up the ridge, the order to charge being given a hundred yards from the crest. The leading squadrons of the Bucks galloped right over

the ridge before they pulled up, killing many with the sword as they went through. The 2nd and 3rd squadrons were on to the enemy before they had time to recover from the shock and in a few minutes they had seized their objective and commenced to consolidate.

The Dorests had come across more broken ground and the leading squadron dismounted and attacked with the bayonet. The other two squadrons, however, stuck to their horses, and reached the top first. By the time the horsemen reached the enemy there was not much momentum left in the charge, but the result was never in doubt, and before the dismounted squadron reached the crest, the other two had cleared the position and the Turks had either surrendered or were in full flight. Incidentally the dismounted squadron lost more in men and horses than the two that had ridden home with the sword. A party of the enemy, in the village, opened fire with machine guns on the two regiments which were consolidating, and so two squadrons of the Berks Yeomanry were galloped across to the village and, fighting their way in on foot, cleared the Turks out.

Six hundred enemy dead were counted on the position and many more were killed, when trying to escape, by the fire of the machine guns which had accompanied the regiments in the charge. The captures included 1,500 prisoners, 3 guns and a large number of machine guns—the enemy's right was completely broken and they retired from ZERNUKA and KUBEIBE, in considerable confusion, after dark. In the two regiments we lost 129 officers and men, and 256 horses, killed and wounded, not an unduly heavy bill considering the result.

The following would appear to be some of the lessons that may be learnt from this action:—

- (a) The attack enabled the infantry objective to be taken.
- (b) It combined fire with mounted action and exploited the advantages inherent in the mobility of cavalry.
- (c) It showed that generally in a mounted attack, if the ground makes it feasible, it is better to carry it through mounted than to dismount.
- (d) It showed that a Cavalry attack, though it is rapid in execution, may take a long time to prepare. On this occasion nearly two hours elapsed between General Godwin's preliminary steps and the delivery of the attack.

- (e) The advantage of having some machine guns close up with a mounted attack, so as to be able to pursue a beaten enemy with their fire, and also to cover the consolidation of a captured position.
- (f) The General's correct appreciation of the situation, previous to his receiving orders to co-operate, enabled him to take preliminary steps which facilitated his acting on those orders, when they were received.

Two days later General Godwin fought another action on similar lines. On this day however there is no doubt, that the moral of the Turks had been lowered by the tales they had been told by a portion of their Force which had fought at EL MUGHAR.

I will now turn to Mesopotamia. In the earlier and middle stages of this campaign the work of the Cavalry in this theatre was somewhat disappointing, but it must be remembered that, in the earlier stages, they were a mere handful and were always fully occupied in keeping large hordes of Arab horsemen at a distance from our Infantry.

During the operations leading to the capture of BAGHDAD, the Cavalry Division was severely handicapped for—

- (a) It was constituted as a division only a few days before the operations commenced. One of the brigadiers was suddenly taken from his brigade and given command of the division, and his staff was as hurriedly organised.
- (b) Owing to a variety of circumstances the initiative of the Cavalry Divisional Commander was considerably cramped by the orders which he received. For instance, in order that G. H. Q. might keep in close touch and control of the situation, orders were given that the cavalry wireless was to be erected every hour; as it took 20 minutes to put up and 15 to take down, irrespective of the time necessary to receive and send messages, it is evident that the mobility of the division was much impaired. Under the circumstances it is not to be wondered that the division did not reap the success, which one might have expected, when following a defeated Army.

The first real Cavalry success was at RAMADIE; in the Autumn of 1917, when the 6th Cavalry Brigade made a wide turning movement round the enemy's flank and got astride the

ALEPPO Road, which was the Turkish line of retreat. Two months later at TEKBIT, the 7th Brigade intervened in the battle at a critical moment, and a mounted charge driven home over trenches at considerable loss, created the opportunity for the Infantry to assault and take the position. In the spring of 1918, the 11th Brigade made astounding captures in the pursuit to ANAH, but there was practically no fighting and the operations were more an example of relentless pursuit and magnificent marching, than anything else.

In the Autumn of 1918, the skill and rapidity with which the large force of cavalry were handled in PALESTINE and the astounding success of the advance, coupled with the fact that public attention was engrossed in the mighty events which were occurring in France, have all combined to obscure the successful operations in Mesopotamia which led to the capture of the last TURKISH Army in the country and the occupation of MOSUL.

In PALESTINE the moral of the Turks gave way entirely and, after the break through, there was little fighting. In MESOPOTAMIA the case was quite different, but the news of the Armistice with Turkey followed so soon after the surrender of the Turkish Army at SHARGAT, that we are in danger of forgetting that the campaign was ended by strenuous marching and hard fighting.

The strategical and tactical success of our arms was only equalled by the endurance and vigour of the troops which took part in the operations.

The Turk who throughout history has been at his best when fighting with his back to the wall, was intent, not only on saving his Army, but also on retaining, what he regarded as one of the fairest provinces of his Empire and one which, to this day, he still has hopes of regaining. He was in a position of great strength, his moral was good and he boasted that his Sixth Army had never tasted defeat, with the result that he put up as stubborn a fight as any in the whole course of the campaign.

In the success of these operations the two brigades of cavalry were no small factor and, as a study of "How cavalry should be handled" these operations are as brilliant an example as history can show.

The Turkish Sixth Army, strength 8,000 Infantry, 3,000 Cavalry with 60—70 Guns was posted on the FATHAH position,

which lay astride the TIGRIS on the range known variously as the JEBEL MAKHUL and the JEBEL HAMRIN. The height of this range was not great but, rising steeply out of the plain with sharp spurs, winding ravines and rocky sides, it lent itself to defence. The Turks had heavily entrenched and wired it so that a direct advance against it could only be difficult and very costly.

On the right bank, the JEBEL MAKHUL merged into the plain about 40 miles from the Gorge, while except the actual passage in the Gorge itself, the only practicable pass over it was at AIN DIBS, which was fortified and held by the Turks, and the approach to which lay across 20 miles of waterless Desert.

On the Left Bank, the JEBEL HAMRIN stretches south-east till it joins the mountains of PUSHTIKU, in Southern PERSIA, a bridle track crosses it at TARFAWI, 13 miles from the Gorge and 10 miles further South is the AIN-NU-KAILEH Pass, held by us, and which we had made passable for wheeled traffic. Near both these passes was water, in the first case a few springs, in the second, sufficient, with care, for a Brigade of Cavalry, but in both cases strongly impregnated with salts and most unpalatable. It must be realised that the governing factor in Mesopotamia was water. Both Armies clung to the rivers, for away from them was death.

The Turkish second, and equally strong, position was 13 miles to the North of FATHAH, at HUMR, also astride the TIGRIS. The main position here was also on the right bank of the TIGRIS, the left lay along the North bank of the LESSER ZAB, which was higher than, and commanded the country on the south bank; communication between the two portions of the position being secured by a bridge of boats across the TIGRIS.

A detachment held KIRKUK.

MOSUL itself lies on the right bank of the TIGRIS and all the country between HUMR and that city on that bank is admirably suited to delaying action, while on the left bank the GREATER ZAB joins the TIGRIS south of MOSUL, and forms a considerable obstacle to an advancing Army. The Turkish Reserves near MOSUL, or hurrying down from PERSIA, numbered 7,000 men with a proportion of guns.

Against these forces we had concentrated :—

- (a) On the Right Bank the 17th Indian Division, with the 11th Cavalry Brigade which was under General Cassels.

- (b) On the Left Bank the 18th Indian Division, with the 7th Cavalry Brigade, which was under General Norton.
- (c) A small Column under General Lewin, was directed against KIRKUK. The whole force, constituting the First Corps and Attached Troops, was under General Cobbe.

At dawn on the 24th October the infantry advanced to the attack to find that, covering themselves by small parties, the Turks had withdrawn skilfully during the night. The 7th Cavalry Brigade, having made a night march from AIN-NU-KAILEH, were in a position of readiness 4 miles North of FATHAH. The 11th Cavalry Brigade, who reached AIN-NU-KAILEH as the 7th Brigade left it, moved off on a long detour which brought them that night to the vicinity of UTH-MANIYEH, on the LESSER ZAB, a distance of 45 miles.

During the day the Infantry pushed on and regained touch with the enemy, while the 7th Cavalry Brigade reconnoitred the crossings of the ZAB and withdrew to bivouac 5 miles South of its confluence with the TIGRIS.

Shortly after dawn, on the 25th, the 7th Cavalry Brigade forced the passage of the LESSER ZAB, driving the enemy across the bridge of boats, over the TIGRIS, which they burnt as they retired; the Cavalry then swept the country, as far North as opposite SHARGAT, returning to bivouac on the ZAB.

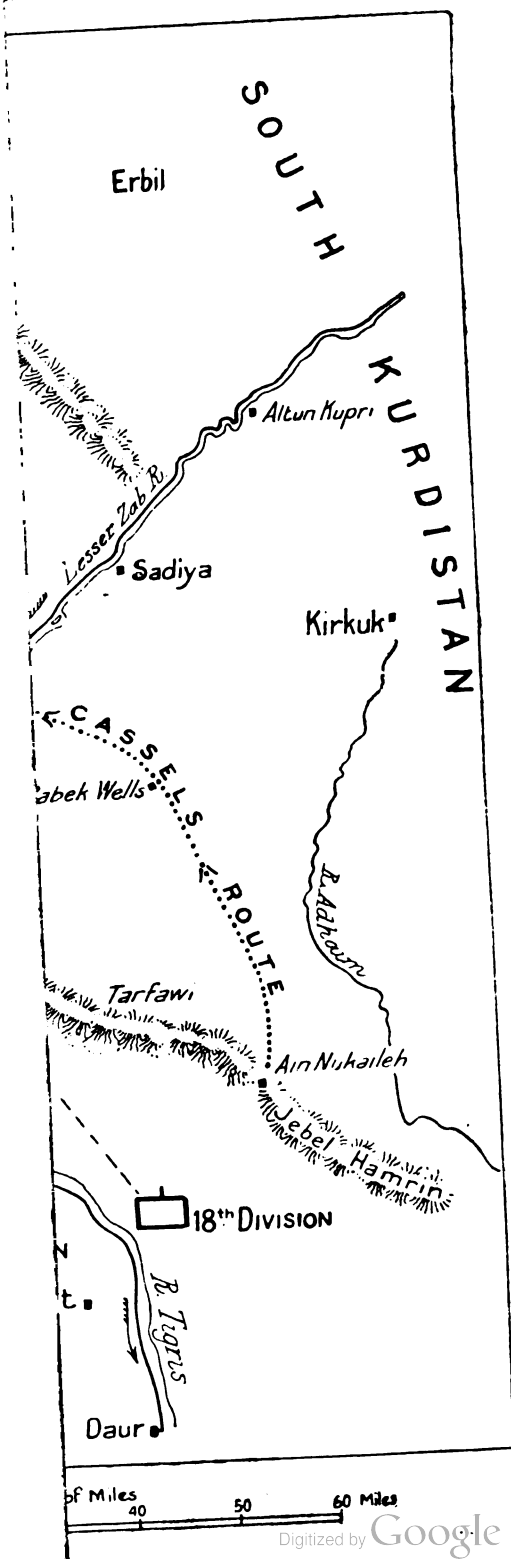
The 11th Cavalry Brigade, having driven off a party of the enemy (800 strong) who opposed their crossing, spent the day getting their guns and armoured cars across the LESSER ZAB. The 17th Division pushed on all day over very difficult ground and were very severely handled at dusk in capturing a wired position, which they held all night against continuous counter-attacks.

The 18th Division, their own front having been cleared by the 7th Cavalry Brigade, crossed the ZAB-TIGRIS confluence and assisted the advance of the other Division by the fire of their guns. One of its batteries was put completely out of action by the Turks, who had excellent observation from the crest of the JEBEL MAKHUL and had evidently carefully registered ranges. Lewin captured KIRKUK.

Owing to the severe losses of the 17th Division, the advance on that bank was postponed on the 26th, while the artillery of

SKETCH No 2

movements at the BATTLE of
IAT.



both divisions shelled the Turkish positions. The 7th Cavalry Brigade again swept the country 12 miles to the North of the ZAB and operated with their Guns against the enemy on the other bank of the TIGRIS, but their chief task was to mask the advance of the 11th Cavalry Brigade, who pushed on and reached the TIGRIS opposite HUWAISH at 13-00 hours, and, having found a practicable ford near HADRANIYAH, got 2 regiments and the machine gun squadrons across the river to a fine natural position at HUWAISH, across the enemy's line of retreat.

The advance of the 17th Division being held up and the Turks showing no signs of continuing their retreat, Corps became nervous that the enemy might drive the infantry back on that bank, so the 7th Cavalry Brigade were ordered back to FATHAH to become a mobile reserve. To do this the Brigade had to make a night march and, starting at 03-00 hours on the 27th they reached FATHAH at 08-00 hours, after a march of 17 miles, the last four of which were over heavy sand and steep nullahs, very trying for the gun teams.

Cassells, owing to an aeroplane message having been dropped on the wrong formation, did not hear that the 7th Brigade, had been withdrawn and that consequently he was left in the air, until 07-00 hours on this morning, when a belated wireless message reached him. In the meantime he had got the remainder of his brigade across the river and had been joined by the Light Armoured Battery who, making a wide detour had come round the right flank of the enemy's position beyond AIN DIBS. He had gained touch with the rearguard of the main Turkish Army, by means of the 23rd Cavalry, who temporarily checked their retirement by a dismounted attack, but, in time, the 23rd were driven in by weight of numbers.

When day broke on the 28th of October, Cassells was in a very serious position. From the South the whole weight of the retiring Turkish Army threatened to overwhelm him, while fresh reinforcements from MOSUL were coming down on his rear. The Turks advanced to attack him but the well directed fire of his own guns and those of the 18th Division, from the other bank of the river, assisted by a very spirited attack on foot by the 7th Hussars delayed the enemy advance considerably. However as day drew on, the Turks commenced turning the right flank. This manoeuvre entailed Cassells having to extend and prolong his own flank and

his line was getting ominously thin, when help arrived. At 16-00 hours the 7th Cavalry Brigade came up, having been sent back to his assistance, as soon as it was seen that the Turks had recommenced their retirement. To arrive in time, they had started at 01-00 hours, the moment that the moon rose, and had covered 45 miles including the crossing of the LESSER ZAB.

The marching of this brigade during operations was a notable performance; during eight days, including one spent in filling up supplies, they had covered 197 miles, averaging 28 miles a day including fighting, and had crossed the ZAB three times and were now to ford the TIGRIS. Of this distance, 92 miles were covered in the dark, and the last 62 miles in 34 hours. It was especially remarkable that, whenever they were required, the 18-pounders, with which the R. H. A. were armed, always managed to be up.

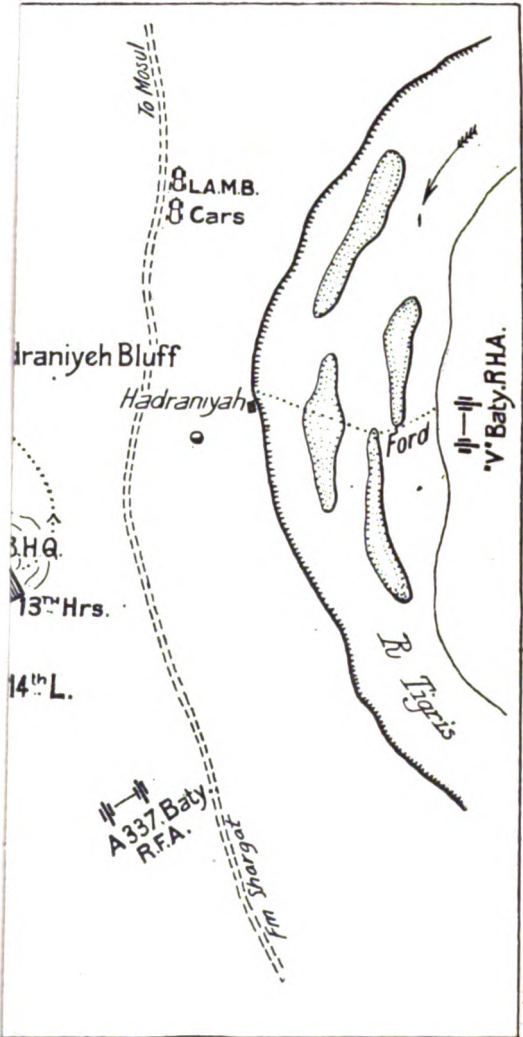
Leaving its a battery on the near bank, with an escort of a squadron, the Brigade forded the River in the fast falling dusk, losing 25 men by drowning in doing so, and took up a position to cover Cassels' rear. In the meantime the latter had been reinforced by some infantry, consisting of a gurkha battalion, who crossed the river by a ferry which Cassels had erected 2 miles South of the ford used by the cavalry. During the day the 17th Division, fighting desperately, had driven the Turks gradually North.

Early the next morning Cassels was further reinforced by the 39th Garhwalis and was enabled to withdraw the tired troops of his own brigade into reserve.

The 7th Cavalry Brigade now had its turn. To understand the action of HADRANIYAH a short description of the terrain over which it was fought is necessary. Westwards from the 20 feet high banks of the TIGRIS, here about a mile wide, runs a flat alluvial plain which, at the time of the fight, was partly covered by crops. On the Western edge of this plain rises a long ridge, probably an ancient bank of the river, in most places very steep and which culminates in a bluff, some 120 feet high, the corner of a deep re-entrant. On the crest of this bluff, along the re-entrant and the ridge to the North lay the Turkish shelter trenches, their reserves well hidden in the deep cut nullahs in rear. South of the bluff, and about 900 yards distant, was a small hill called by us Cemetery Hill, because of a Mahomedan graveyard on the top. Cemetery Hill was joined by a col to the main ridge at the Southern edge of the deep re-entrant.

SKETCH No. 3

FEATURE of HADRANIYEH BLUFF.



Scale (approx.)

1/2 3/4 1 Mile

■ M.G. ♂
■ M.G. ♂

The bluff, on which the enemy were posted, was considerably higher than both Cemetery Hill and the slopes of the southern side of the re-entrant. When the brigade arrived, owing to the darkness, it had been impossible to reconnoitre either the ground or for the enemy; protection for the night had been provided by placing one regiment on the ridge, in touch with the 11th Brigade, and piquets across the plain. An hour before dawn the brigade, less the regiment on the ridge, was withdrawn under the shelter of the high banks of the river.

At dawn on the 29th a squadron of the 13th Lancers was sent forward to reconnoitre northwards, but no sooner had it moved into the open than it came under heavy fire from the bluff, so it made good Cemetery Hill. At 08-15 the 13th Hussars advanced out of the river bed and, under the cover of the R.H.A., attempted to gallop the bluff, but were met by heavy rifle and machine gun fire and took cover behind Cemetery Hill. The machine gun squadron was then galloped to the same hill and, under cover of its fire, the 14th Lancers were galloped across the plain, in rear of the hill, to the ridge South of the re-entrant, where they took up a position so as to prolong the line to the west and so prevent the Turkish reinforcement on the bluff from joining hands with the main body.

These manoeuvres had disclosed the fact that the Turks were in considerable force and had a large number of machine guns, and a few guns. Shortly after this the Turks attempted to advance to attack but were driven back by our fire and, in the course of the next hour, various reconnaissances located the position of the Turks fairly accurately. The position of the Brigade was precarious as it was pinned to the ground and it was evident that a serious effort would have to be made to take the bluff. In response to reports sent to General Cassels a field battery was sent as a reinforcement and then General Norton decided that a fresh effort must be made.

The enemy position was bombarded for 10 minutes by both batteries and, at 13-20, the 13th Hussars emerged from the cover of Cemetery Hill and raced for the bluff, under cover of a heavy fire from the guns and machine guns, which plastering the Turkish trenches with H. E. and bullets kept the enemy's heads down. On reaching the dead ground, at the bottom of the almost precipitous slope the Hussars dismounted and, fixing bayonets swarmed up the hill, the guns lifted and, with a cheer, the Hussars rushed

the front line trenches. As the Hussars were seen to enter the trenches, in accordance with instructions previously issued, the 13th and 14th Lancers were signalled to mount, and in open order, they galloped up the Northern slopes of the re-entrant. A counter-attack by the Turk's Reserves was repelled by the Hussars with the bayonet and fire from rifles and Hotchkiss Guns, and then, the Turks, seeing the advancing pennons of the Lancer regiments bearing down on their flank and rear, surrendered. The result of this brilliant action was the capture of over 900 prisoners, 2 camel guns and 12 machine guns; over a hundred enemy dead lay on the ridge, while our casualties were insignificant. As a peace manoeuvre I have no hesitation in saying that it would have been ruled out as impossible.

The success was due to—

- (a) The accuracy of the Brigadier's judgment in recognizing the value of the dead ground at the foot of the bluff.
- (b) The perfect co-operation of the R. H. A. and the machine gun squadron.
- (c) The dash with which the attack was carried out.

The impossibility of aeroplanes making accurate tactical reconnaissance is shown by the fact that, shortly before the attack was delivered, General Cassels sent the following message "Am informed by an aero reco, made at low altitude, that the party opposing you consists of about a hundred men, dotted about in groups of threes and fours." The infantry, spurred on by the news of Cassels' danger, pressed on the whole day and had some severe fighting, which continued the whole night. During the 24 hours out of 3,000 Infantry actually engaged 500 casualties were incurred, although the enemy had no heavy artillery and their mobile artillery was below the normal proportions in number.

Next morning, his men being exhausted with continuous fighting and suffering severely from lack of water, seeing that his line of retreat was now effectually barred, HAKKI BEY surrendered with the whole of his force.

The above operations, among other lessons, show the capabilities of cavalry in fighting a delaying action, their power of executing long marches across country in a comparatively short space of time, their capability of crossing rivers, of making a

detour and placing themselves across the enemy's line of retreat, the combination of fire with mounted action and their power, in case of necessity, of carrying out attacks on foot.

The Turks fought stubbornly, so it was evident that they did not lose their moral and they proved to be well armed and equipped. There is no doubt that they made a tactical error in not crushing Cassels before he was reinforced, but their Commander himself told us that he had been confident that Cassels had had two brigades with him the whole time and that, if he had realised that, at first he had only one brigade, he would have taken steps to brush him aside.

He gave the following reasons for this opinion:—

- (a) The manœuvres of the 7th Cavalry Brigade, when masking Cassels' advance, had completely deceived him and he was quite under the impression that they had joined Cassels.
- (b) This impression had been confirmed by the 11th Brigade making its two dismounted attacks as the Turkish Commander had considered it was impossible for Cassels to do this if he had only one brigade at his disposal.

En passant it is very doubtful if the cavalry had not been armed with the bayonet, whether Cassels would have been able to take this risk and whether he would have been able to maintain his position.

Possibly the main lessons to be drawn from the examples that have been quoted are that cavalry depends more than any other arm on the character and determination of its leader, a lesson which history confirms, and that bold offensive action, as a rule, has results far out of proportion to the size of the force carrying it out.

In conclusion I will make a few remarks about peace training.

I would respectfully maintain that cavalry is more affected by the limitations of peace training than any other arm:—

- (a) In peace time the moral effect of cavalry is entirely missing.
- (b) The governing factor on field days is lack of time and for this reason, the cavalry are never given sufficient time to reconnoitre or to send in reports. It is this fact, more than any other, that leads scouts and

patrols to indulge in the impossible performances which are so frequently complained of.

- (c) Reconnaissance is considerably more difficult to carry out on manœuvres than in war.

The two methods of reconnoitring a position are, either to get round it and either see or draw fire, or, in the case of a position whose flank cannot be turned, to approach direct and draw fire.

As regards the first, in war, any body of troops is nervous if its rear is threatened and will invariably take steps to deal with the body which is threatening it, and so disclose itself. On manœuvres this fear does not exist so the difficulty of the cavalryman's task is much increased. In war there are many ruses by which fire can be drawn, on manœuvres it is practicably impossible to do so.

- (d) A mounted attack, which would have every chance of success in war will in most cases, be ruled out on manœuvres because—

- (1) The moral effect of the advancing horsemen is entirely lost when the defending force knows that they are going to pull up a hundred yards away from it.
- (2) On manœuvres the defending force always assumes that every shot fired has effect. Fortunately this is not so in war.

(The details of the Action of EL MUGHAR are taken from Preston's Desert Mounted Column.)

CAVALRY V. ARMoured CARS.

SOME IMPRESSIONS FROM THE RECENT EASTERN COMMAND
MANŒUVRES.

By Major C. A. M. Howard, 13th D.C.O. Lancers.

I think it will be agreed that the outstanding feature of the recent manœuvres, was the effectiveness of the armoured cars but, without in any way wishing to disparage the bold and skilful handling which characterized their use, I feel bound to say that, as far as the Khaki cavalry was concerned, the debacle at GURGAON on the 15th January, when the advanced Khaki cavalry literally walked into the armoured cars concealed in that village, was in part due to the following causes:—

- (a) On the General and Special Idea issued to the Khaki Force a note appeared that "no troops from PALWAL were to be N. of BADSHAH PUR before 10-00 hours on the 15th." I think the Khaki cavalry which reached GURGAON about 08-00 were under the impression that no armoured cars would therefore appear before 10-00. Hence the surprise effected by the Armoured Car Company, which came from Old Delhi.
- (b) Secondly, the surprise effected by a new and unfamiliar arm, which may be best summarized in the words of an Indian officer of the Khaki cavalry, "I had never seen an armoured car, I had never even heard of one. As a matter of fact I thought they were water carts!" I may add that the above is the true and unexpurgated version of this story as delivered in my hearing. I mention this as I have heard several variations, including the one where the Indian officer went up to an armoured car and asked for a drink!

In addition to the above main causes mention may be made of the effectiveness of the Klaxon Horn as a means of indicating Machine Gun fire. There is something peculiarly nerve-racking and realistic in its blare; which literally gave rise to a mild form of "jumpiness."

The events of the 15th were therefore mainly instrumental in introducing the troops, and particularly the cavalry, to a new arm; and too much stress should not therefore be laid on these events, if useful lessons are to be deducted; though the surprise of a new arm may be classified as a useful lesson itself.

There is one important lesson, however, which stood out, and which impressed itself on the troops; and that is the remarkable mobility of these cars. I think that troops accustomed to think of the conventional 5 miles an hour of the cavalry and 3 miles an hour of the infantry really had an eye-opener; which, was apparent, so far as the cavalry were concerned, in increased wariness and caution. I think the latter was probably a little overdone; but this must always be the case where novel conditions arise.

I now come to the second day of the manœuvres, the 16th, and I think the events of that day brought out some really important lessons.

The objective of the Khaki Cavalry on that day was OKHLA. Leaving camp at NATHUPUR at 07-30 the village of GHATORNI was reached by 03-00. Thence an advance by bounds was made *via* MAHSUDPUR and MUNIRKA. W. of this village, about mid-day, a hostile aeroplane flew over the column, dropped bombs, and then reported the advance to Blue Headquarters—an example of good reconnaissance. The march was subsequently continued and the column watered at MUNIRKA. Advancing from here about 13-00, scouts reported 3 armoured cars (part of a company detailed to intercept the Cavalry), at HAUS KHAS, from which a track leads to the main DELHI-MAHRAULI road. These were kept under observation for some time in the hope that they would withdraw; but at about 14-30, as they had obviously no intention of doing so, a detour was decided on. Moving to the N. the column came under distant fire from the armoured cars at HAUS KHAS. Continuing the movement in a Northerly direction under cover of broken ground and villages, an attempt was made at about 16-00 to debouch from broken ground N.-E. of MUHAM-MADPUR. This attempt was again held up by armoured cars operating from the main road, whereupon the column retraced its steps and fell back on MAHRAULI *via* MUNIRKA and MAHSUDPUR.

The net result therefore of the day's operations was that the Khaki Cavalry was completely neutralised by the Armoured Cars

and took no part in the battle; and the effectiveness of air reconnaissance and co-operation should here be noted.

Whether the Khaki Cavalry could have galloped the DELHI-MAHRAULI main road by squadrons, or even by troops, without undue loss, is a debatable point; but certain it is, that once their presence and approximate position were established by the armoured cars, there was little hope of their crossing the main road, patrolled by cars moving at 30 miles per hour, without being spotted and coming under heavy fire. At the best the cavalry advance must have been considerably delayed; and they must have suffered considerable casualties, without being able to hit back. It is the inability to hit back that I wish to stress; and I wish to draw my main lesson from this condition.

Now I wish to represent, mainly for the benefit of those who would relegate the "little old cavalry" to the limbo of back-numbers, that, until such time as armoured cars or tanks, (I introduce tanks as my subsequent remarks apply to them also) are able to overcome every natural obstacle in their path, *e.g.*, hills, rivers, forests, broken ground, not to mention artificial obstacles, so long will cavalry not only be absolutely essential, but must continue to be the main mobile factor in any mixed force. Independent missions, wide turning movements, pursuits, close reconnaissance must still mainly devolve on the cavalry. I do not say that in special circumstances armoured cars and tanks will not be able to co-operate (this has been proved in Mesopotamia and Palestine) or even take full responsibility for these functions, but this must depend on special circumstances, *i.e.*, suitability of the ground. Until such time, therefore, as armoured cars and tanks can go everywhere that cavalry can go, and see everything that cavalry can see, cavalry will continue to be the predominant partner. But, one thing is certain; that sooner or later cavalry operating on the flanks or in pursuit will meet the enemy armoured cars or tanks, as happened in the case under discussion; and with similar results unless a remedy can be evolved. It is probable that no suitable artillery support will be at hand to deal with the situation. What form, therefore, should this remedy take?

During the manœuvres one heard a great deal about obstacles. Obstacles to be effective must block a defile, *e.g.*, a bridge, a deep cutting, or a steep embankment, etc., otherwise they can be circumvented, (on several occasions during the manœuvres armoured cars left the roads and gave chase across fields) and at their best they are

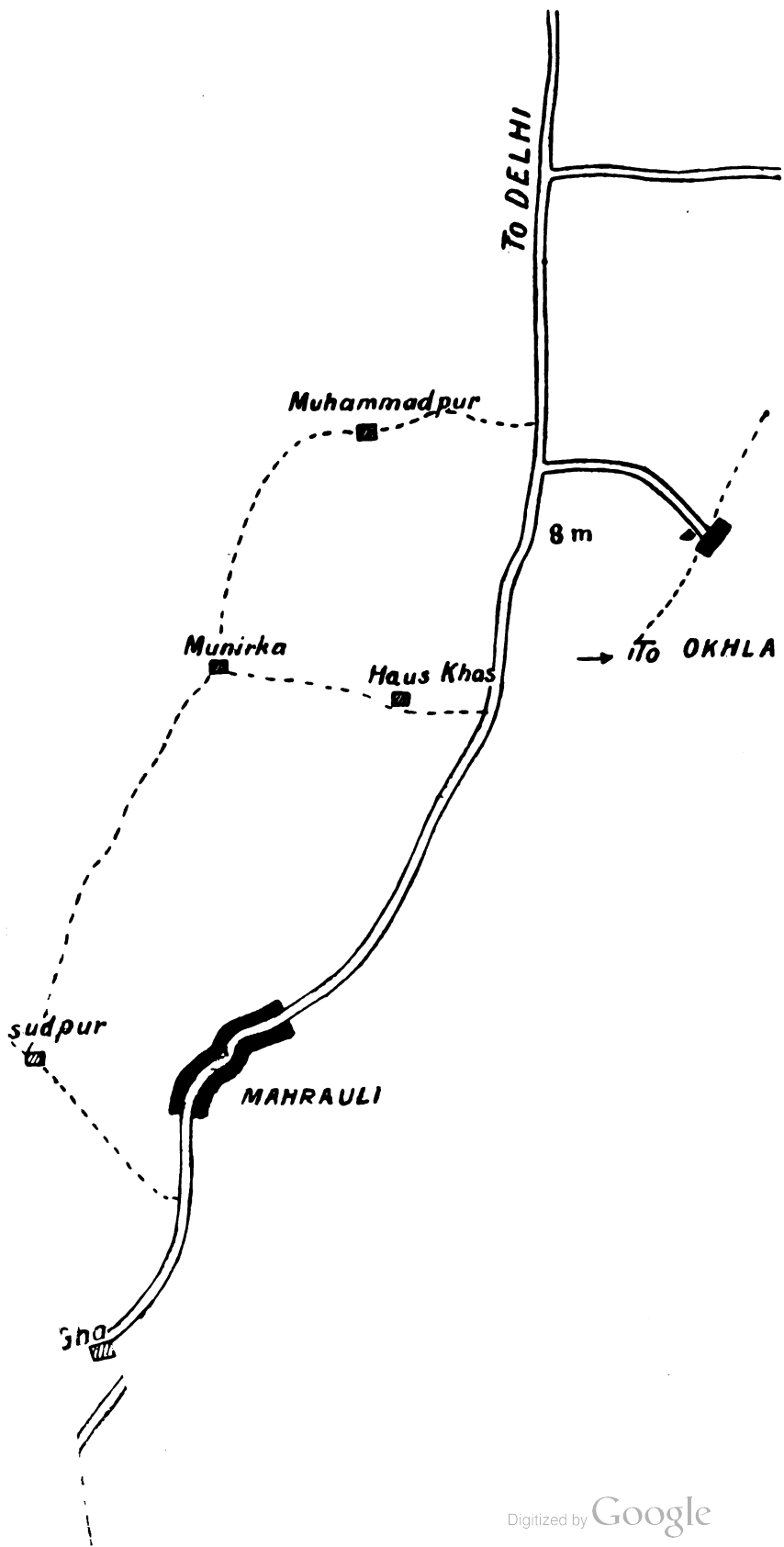
only protective or delaying measures, which can only be effective for so long as the enemy takes to remove or overcome them. If it is desired to block a road more or less permanently, short of blowing up bridges, etc., it will be necessary to place a picquet over the obstacle to prevent interference by the enemy. It is impossible, however, to block every approach; and obstacles, however helpful they may be as auxiliaries, do not therefore solve the problem of the cavalry advance. A passive policy is anathema in war, and is in direct conflict with the second principle of war, *i.e.*, offensive action. How then can offensive action be assured to the cavalry. The answer is obvious; by the provision of an anti-tank weapon or projectile; a light anti-tank gun (pack) is suggested. I can hear groans from the unfortunate cavalryman, already bristling with every known form of weapon; but war is an offensive business, and the unforgiveable sin is passivity, which besides being futile and ridiculous, is highly demoralizing.

It may be asked "What of the horse battery with a cavalry brigade"? In reply I would submit that cavalry does not always operate in brigades, nor is it always possible for the guns to be up. I would further suggest, though I am open to correction, that a gun might find difficulty in getting close enough to register direct hits.

My point is that the cavalry regiment must be self-contained, and that no step should be neglected to preserve its mobility and freedom of action. Otherwise, it seems to me, the apostles of an effete and obsolete cavalry will have reason on their side.

I suggest that this is a subject requiring consideration, in view of the almost universal adoption of the tank; and in this connection I would draw attention to a recent lecture by Colonel Fuller in which he pointed out that Russia led the world in tank construction.

In conclusion I would submit that I have approached this subject with considerable diffidence as I have no active experience of either tanks or armoured cars; and my views are merely those of an umpire with the Khaki Cavalry during the manœuvres. I was, however, in close touch with the situation I have endeavoured to describe; and my main object in writing this paper is to incite discussion on what seems to me to be a matter of considerable importance.



CORRESPONDENCE COLUMN.

DEAR SIR,—I read with considerable interest Lt.-Col Beauman's letter on Age and Efficiency, but I missed "T.F.'s" reply.

Lt.-Col. Beauman's comments on T.F.'s letter in your January issue however indicate sufficiently the nature of that reply.

2. Lt.-Col. Beauman's comment on T.F.'s contention that the present age limits were in force in the 1914 Expeditionary Force is that higher commanders were all "specially selected.....and were in many cases young in comparison with the rank they held." Surely he does not suggest that present day commanders and staffs are not "specially selected."

The present practice appears to be to promote selected brevet-lieutenant-colonels to substantive colonel's rank. This ensures the supply of young men in the higher ranks.

3. Lt.-Col. Beauman also writes, "It was the New Army Divisions which suffered.....from senior commanders and staffs..... who were in many cases too old for their jobs."

I had the misfortune to be in India for the first three years of the war, so cannot speak with Lt.-Col. Beauman's authority. I suggest that this criticism should more accurately be worded "who were in many cases too rusty for their jobs."

It must be remembered that all our leading military talent was in France. What we had left were mainly dug-outs. Take an average good general, put him on half pay for two or three years for special service on the committee of say the Cheltenham club; take away the horses he used to ride and substitute mild golf. Now dig him out at the end of his three years and put him in command of a New Army Division. Is it surprising if he is not as efficient as he would have been before he went on half pay?

No Sir! I submit the army suffered as much from inefficient youth as from old age.

4. Age limits are unreliable tests of mental and physical activity. A man of fifty is often more active than a youngster of half his age. There is, of course, an age beyond which the average man cannot with immunity suffer the hardships he used

to undergo and retain his health. Presumably by setting the age limit for command at 42, Lt.-Col. Beauman thinks this is reached at 46. This is of course a matter of opinion, but I think this figure is pitched a little too low.

5. I suggest that we should revert to the age limit in force 20 years ago, namely 48, but that all captains and all officers of over 15 years service should be eligible for promotion by brevet. I am aware that a few brevets are given each half year, but these are invariably to Staff Officers, usually at the War Office.

Let us see in the gazette—"Major X, Commanding 200 Field Battery, to be brevet-lieutenant-colonel"—Major X has earned this through having trained his battery to a high standard of efficiency. In due course Major X, keeping up this standard, is selected as a brevet-lieutenant-colonel, then promoted to substantive colonel and appointed a territorial C.R.A.

In this way we should get a supply of young senior officers.

6. Lieut.-Col. Beauman's suggestion of a much lower age limit would mean that a young officer would have at least a five to one chance against him of ever attaining command of his regiment. Presumably, the existing practice being to place on half or retired pay a 11 superseded officers, he would have to face the world of unemployment at 42 with a pension of less than £300 a year. The effect of this on the already difficult problem of the supply of young officers requires no comment.

I enclose my card, but sign myself,

"A PERSON OF NO IMPORTANCE."

DEAR SIR,—I am sorry no one but myself has been tempted to break a lance with Lt.-Col. Beauman. Perhaps those who might have done so are content in the knowledge that the "old" ages still find favour at Olympus. And that may also be my excuse for now riding out of the list with a salute to a very courteous opponent, but, before retiring, may I have a last word as follows:—

1. I agree; but Lt.-Col. Beauman's original article dealt with commander's in peace as well as leaders in War.

2. My only comment is a quotation from the original article, "It is obviously undesirable to quote individual cases from the late war."

3. I still think that experience is a necessary qualification for training, organising and administering, and experience grows with age.

4. I did not write approvingly of the gradual substitution of young for old men *on the out-break of war*. I said that the present system does not prevent the gradual substitution of young for old men, *if the necessity arises*. The idea of changing commanders "on the out-break of war" had not occurred to me.

I am, sir,

Yours truly,

T. F.

DEAR SIR,—In the January number of your Journal, Colonel Milward in his article entitled, "Protection on the march Mountain Warfare" has, I think, somewhat misrepresented certain matters in regard to the block system of withdrawal mentioned by me in an article which you published in your Journal in July 1924.

If progress is to be made, criticism is essential, but in justice to the method under discussion, I feel I should point out what I consider inaccuracies in that criticism.

The "block system" was a method of withdrawal that was used with success under certain circumstances in Waziristan and possibly may be more fully used in the future.

I had no idea of stating that it was the one and only method of withdrawal, as is suggested, and in my second article which you published in your October number, where my whole theme was that there should be no cut and dried methods in Mountain Warfare, these words may be found:—(page. 512), "piquetting methods must vary according to the problem involved. In these cases (that is in minor operations) the day piquetting system will probably be used, just as it will be when marching through a hill country where the population is not definitely hostile."

Colonel Milward's contention that at present, in Waziristan, the day piquetting system is sufficient, bears this out; but it is hardly an argument against the "block system;" for I believe the latter will be of most use when strong, rear and flank attacks are met with.

It is essential that commanders and troops should know the different methods that have been tried and found successful when

working in the hills. They must then use their judgment and common sense in utilizing them as required. If, however, we label one as a bad method we will find that few will try it.

The "block system" of withdrawal has not yet withstood the test of hard fighting, but I do not think that the retirement down the BARA Valley in 1897 should be cited as an example of how to protect a retiring column.

Our object in a retirement is not to let the enemy fight us "hand to hand," but to keep them at a distance.

One of the main criticisms Colonel Milward made was that there was no responsible officer in command of the rearguard, and that the command passed from company commander to another. Also it was said that one platoon only formed the rearguard, and that there was no reserve.

A reference to page 334 of your number of July 1924 will show that this is not so. In a Battalion, the Battalion Commander is the rearguard commander throughout his Battalion Sector. He is in close support of his company nearest the enemy, and has beside him, one company as Battalion reserve.

In a Brigade retirement the same system leaves the Brigadier in close support of his rear battalion with one battalion in immediate reserve.

The fighting front of the rearguard is not the one platoon seen in the bed of the nullah, but the front offered by the company, which fronts to its rear and the immediate flanks (less its one local reserve platoon). This is not the simplest method of conducting a withdrawal, and it needs trained troops; nor is it by any means always necessary. Let those however, who remember MUSA KHAN'S lightning methods of attacking the L. of C. in the TAKHI ZAM in 1921 with 200 or 300 men, when he concentrated on one weak spot whilst neutralizing the three or four permanent piquets nearby with fire, ask themselves under which system a withdrawal of several miles were best protected when such sudden and heavy attacks are to be expected from the flanks. It is a problem that may face all of us any day; so is a matter worth considering.

I am, Sir,

Your faithfully,

C. KIRKPATRICK, COLONEL,

3/12th Frontier Force Regt.

DEAR SIR,—The following problems appear somewhat obscure and I shall be much obliged if you could have them published in the Journal of the United Service Institution of India with a view to obtaining a solution of them :—

(1) In view of modern Artillery and Aeroplanes, what is the best formation for a force of a Brigade Group or larger to adopt when approaching an enemy :—

(a) By Night.

(b) By Day, in such open formation as will offer the least target to hostile Artillery and Aeroplanes ?

Bearing in mind that it is necessary to disperse during the approach, yet on the other hand, to advance in any dispersed formation such as square or diamond formation by night, and even by day in broken country, is often impossible and in any case most trying to the troops if carried out continuously for any length of time.

(2) The theoretical teaching in the manuals and various schools is that Sappers and Pioneers should never be employed in doing work which can be carried out by non-technical troops such as Infantry.

This teaching is applied to the question as to whether Sappers and Pioneers should be employed in the erection of Permanent Piquets in Mountain Warfare. Yet, in practice, a party of Sappers and Pioneers is invariably detailed for each permanent piquet for wiring, whilst the infantry build the piquet. It is all the Infantry can do to find the covering troops and building parties, moreover, unless the wiring is carried out by experts, the piquets are not completed in the time available.

(3) Cavalry Training, Chapter 1, para. 2 gives the main duties of Cavalry, and the general principles for their employment.

The difficulties of applying these principles arise when the Commander of a force only has a very small portion of cavalry at his disposal.

A Commander of a Brigade Group, for example, has one squadron of Cavalry at his disposal.

In advancing towards an enemy, how should the squadron be employed ?

(a) Should it be placed under the Advanced Guard Commander for Protection and Reconnaissance ?

- (b) Should the Commander retain it under his own orders and use it as a protective screen?
- (c) Should the major portion of it be kept in reserve, using only patrols for the purpose of protection and reconnaissance?

Yours, etc.,
 "PUZZLED."

It would be rather difficult, not to say dangerous, to attempt an answer to these interesting problems in the space at our disposal. They are all of them, moreover, matters with regard to which no one opinion is necessarily correct.

It would, however, be extremely interesting to have these points threshed out, and we hope, therefore, that some of our members will put forward their views in time for the next issue.—
 EDITOR.

DEAR SIR,—Cavalry Regiments are armed, at present, with 9 Hotchkiss Rifles—three per squadron. In the mounted attack a problem always presents itself to the Regimental and Squadron Commander—"What am I to do with the Hotchkiss Rifles?"

One view is that the Hotchkiss Rifles should take their part in the attack and add their weight and momentum.

Others consider that they should be used to help to cover the mounted attack by fire.

Yet another school holds that they are only required to come into action after the mounted attack has taken place, to pursue with fire, or to cover the re-organization of the unit.

This question arises more especially in mounted attack against cavalry, but applies also to the attack against infantry.

Yours Faithfully,

F. G.

The object of arming cavalry with a light automatic weapon is, firstly, to provide covering fire in the attack, secondly, to provide fire for the pursuit, and, thirdly, to provide fire in consolidation or in defence.

To use the light automatic as suggested in the first alternative, i.e. to add weight and momentum to the attack, is therefore a misuse of the weapon. In certain circumstances, however, it

may be necessary for the light automatic to accompany the mounted attack in order to fulfil the second and third roles suggested above. In this connection it is interesting to consider the action at Al Mughar referred to in Col. Strettel's article in the present number of the Journal.

The commander of a cavalry regiment or squadron has to decide, on the circumstances of the moment, how many of his available weapons he requires to provide covering fire for the attack, and at the same time to make provision in his instructions for certain automatic weapons to accompany the sabre troops in the attack, with a view to providing pursuit by fire and for consolidation, i.e. to meet counter-attacks, etc.—EDITOR.

DEAR SIR,—As a landsman, I have been much exercised by the following problem ;—

“How to employ half a flight of Aeroplane to the best advantage ?”

Unfortunately the problem is not really a practical one, for, in War, one would normally expect at least a Flight to be attached. At the same time, whenever Brigade Training or Manœuvres take place at any distance from an R. A. F. Station, two machines appear to be the most that can be made available. Further, in examinations for promotion, which generally deal with a detached force or mobile column, half a flight is often allotted. Therefore the problem under existing circumstances, does constantly arrive and I am continually meeting it.

When allotting tasks to any R. A. F. unit co-operating, the following points should be remembered :—

- (a) Definite questions produce definite answers. When ordering a reconnaissance, ask for answers to certain definite questions.
- (b) When a reconnaissance is ordered, presumably information is required, otherwise the reconnaissance should not be made. It is, then, inadvisable to risk the receipt of the required information, by giving the aeroplanes the extra task of ground-strafting.
- (c) Do not require an aeroplane to drop reports at too close intervals. It takes it away from the target it is watching, and expends petrol (and therefore radius of action) unnecessarily.

(d) The flying hours of aircraft are limited. When using aircraft, as in every other operation, always keep a reserve if you can. Do not therefore use them all out until the decisive moment.

(e) When the enemy has been located, the plan decided upon, and orders for attack or defence issued, it will usually be advantageous to turn the majority of close co-operation aeroplanes on to artillery or other work. If aeroplanes are very limited they may even all be used for this purpose.

With the above in view, one is faced with the problem as to how to allot tasks to the two machines at our disposal.

On our last Brigade Training and Inter-Brigade Manœuvres the R. A. F. liaison officer gave it as his opinion that it would be best to employ one machine in the air at a time, and that $2\frac{1}{2}$ to 3 hours was the longest time for which you could expect it to remain up.

Is this the generally accepted opinion?

If so the problem then becomes one of how to employ one aeroplane to the best advantage.

Presumably its primary rôle must be reconnaissance. While carrying out this reconnaissance the pilot may observe an excellent target for ground-strafting. Can one afford to allow him to take advantage of any such opportunity, or should one be definite in ordering him not to descend below the height at which reconnaissances are normally carried out?

It seems to me that with only half a flight at your disposal you must allot it the task of reconnaissance only, and, as flying hours are limited, you must decide carefully before-hand at what period of the day you require constant observation.

The difficulty is, let us hope, only a temporary one and for that reason possibly not worth discussion. As regards promotion examinations and T. E. W. T.'s, I would suggest that nothing less than a Flight be allotted to commanders.

Yours faithfully,

R. D. I.

R. D. I. deals with this subject in a way which shows that he is alive to the fact that the general problem of how to use the Air Force is a most important part of a Force Commander's duties.

From a Royal Air Force point of view the remarks he makes in connection with allotting tasks to half a Flight are sound. The following observations are however made, :—

- (a) It is very important indeed that the aeroplane is asked for answers to definite questions when sent out on a reconnaissance.

The R. A. F. officer concerned should also be given as much information as possible as to the situation, so as to enable him to have a more intelligent appreciation of what he sees.

- (b) Ground strafing should be properly controlled and ordered only on special occasions.

The combination of reconnaissance and ground strafing is wrong for the reasons stated.

An occasion on which a Force Commander would be justified in ordering ground strafing would be to hold up a threatening advance by the enemy. If the position was serious the majority of his Air Force could be used in this connection.

- (c) Messages normally should be dropped at the end of a reconnaissance answering definite questions asked. Whenever possible the observer should also give his report verbally to the Force Headquarters officer concerned, but, in any case, he should do this to the squadron or Flight Intelligence Officer.

- (d) In the case of half a flight only, i.e. 2 machines, being available, it is inadvisable to send them both up at the same time on long jobs as no reserve is thereby kept. Moreover, on their return to the aerodrome, they would not be available for approximately an hour, as refuelling, etc., would have to take place.

- (e) There will be definite artillery work for the aeroplanes to carry out, but it is important that the Force Commander is clear in his mind as to what other work can be carried out advantageously. There may be nothing to do outside artillery work, but he can bear in mind that he can keep touch with his own troops by aeroplane and obtain situation reports when other means of communication have temporarily broken down.

As regards (1) the 1924 edition of F. S. R., Vol. II, Section 57, states that outposts will usually be divided into piquets, supports and reserves, in order to provide depth in the defence, but that this distribution may not be necessary and the actual method can be varied to meet any particular situation. Piquets correspond to the garrisons of the foremost defences in a defensive position. From this it seems clear that it will, more often than not, be advisable to post piquets in front of the outpost line of resistance.

As regards (2), to lay down in orders how a position is to be held is opposed to F. S. R., II, Section 189-4, "the method of attaining the object will be left to the recipient to the utmost extent possible."—EDITOR.

REVIEWS.

"History of the Great War, Medical Services General History, Vol. IV." By H. M. STATIONARY OFFICE. Obtainable at H. M. Stationary Office, Imperial House, Kingsway, London, or at Messrs. Thacker Spink and Co., Calcutta and Simla. (25s. net.)

This is the final volume of the General History of the Medical Services during the Great War, and has been compiled by Major-General Sir W. G. Macpherson, K.G.M.G., C.B.L., L.D., and Major T. J. Mitchell, D.S.O., R.A.M.C.

It is an extremely instructive and interesting volume which deals with the medical situations in Gallipolli, Macedonia, Mesopotamia, North-West Persia, East Africa and the Caspian, and gives a lucid and absorbing account of the difficulties which had to be met and overcome in the various areas described.

Chapter I deals with the operations on the Gallipolli Peninsula. We read that insufficient arrangements were made to receive casualties during the landing, and that wounded had therefore to be returned to the transports from which the troops had just disembarked. The transports themselves were unfitted to receive wounded, while they had no medical staff.

No hospital had been organised at Mudros prior to the landing, and it was therefore impossible to differentiate between light and serious cases. Transports had to sail direct from the beaches to Alexandria, and, as the hospitals in Egypt become full, the wounded had to be sent on to Malta.

For an operation of this nature the medical services required a number of fully fitted and staffed hospital ships, launches, and lighters, with behind them well found hospitals to which wounded could be taken, cared for and classified previous to evacuation to Egypt, Malta or the United Kingdom. These should have been ready before the landing began, but they were not forthcoming, and the result was confusion and unnecessary suffering.

Again we find that sanitation after the landing was defective. There followed, as might be expected, a plague of flies. Diarrhoea and dysentery became rife, and at a low estimate the admissions to hospital during 1915 amounted to no less than 84,000.

A great proportion of this loss could have been avoided had proper sanitary precautions been taken.

Later during the operations, hospitals were opened at Mudros and Imbros. Hospital ships were increased in numbers, while it became possible to land more field units on the Peninsula. The medical organization in consequence greatly improved, but the bad sanitary conditions still remained, while frostbite added to the already difficult conditions. At times the number evacuated daily amounted to 1,000.

It seems clear that most of the difficulties encountered arose from want of forethought and lack of proper medical organization at the start—the failure to provide sufficient transport, properly equipped and staffed hospital ships, launches and lighters, and to organize a proper system of evacuation.

Chapter II deals with Macedonia. Here there was more time to bring up medical units and arrange sanitation, while doubtless experience played its part in improving the general arrangements. Even here, however, we find the medical units arrived in one ship, and their personnel, much later, in another.

Malaria was the chief enemy in this theatre, and there were no fewer than 16,488 admissions from this cause alone in September 1917. Quinine prophylaxis seems to have failed to stop the outbreak.

The transportation of sick and wounded from the hills to the roads where motor ambulance conveyances could work was a matter of great difficulty. Various methods were employed including wheeled stretchers, cacolets and travois.

Ten chapters are devoted to Mesopotamia and the account is full and dispassionate.

With regard to the initial stages, while full credit is given to the energy and powers of improvisation shown by those on the spot, the basic cause of the fatal shortcomings is summed up in the following words:—

“Initiative had been dulled by many years of economy in India and this probably explains why ambulance wagons, motor ambulance cars, motor launches, hospital river steamers, extra units and all the modern equipment so readily provided for the force in France were not even asked for by the Head-quarters of the Indian Expeditionary Force to Mesopotamia.”

Page after page referring to this early period give examples of suffering, illness and death due to want of forethought and to lack of modern methods for dealing with casualties in the field.

Space forbids quoting from these at length, but the following random extracts are sufficient to call attention to these points. Pages 190—193 describe the medical condition on the 24th July 1915 and a breakdown due to want of proper transport for the evacuation of casualties.

“No strenuous efforts were made to represent the actual conditions and the lack of medical units.”

Later it is said:—

“It is obvious that, with the units at the disposal of the A.D.M.S., 6th Division, no adequate arrangements could be made for treating the wounded on the field of battle.

At the same time there were two prominent defects in the arrangements which had been made in consultation with the General Staff.

The first was that all walking wounded were to be evacuated forward into Baghdad, a town still in the hands of the enemy, the second the failure to appoint an embarkation of wounded at Lajj. ”

Truly the optimistic spirit which characterised the advance seems to have permeated the whole force—except perhaps the unfortunate wounded themselves. Again and again we find orders issued for the wounded to be carried forward with the medical units—a breach of ordinary principles which must inevitably lead to congestion and confusion.

It is essential that allowances should be made for the difficulties of the country, the conditions, and the climate, but when we read, with reference to the battle which lasted through the 6th, 7th and 8th of January, that evacuation of the wounded was not complete till the 24th of January, it is obvious that something more than natural difficulties must be held responsible for the failure and suffering which took place.

Again, referring to a period as late as January 1916—15—months, be it noted, after the campaign had started, we read :

“There was great confusion at Basra.....Drinking water was scarce, the feeding arrangements were inadequate, there was a lack of accommodation for the sick and sanitation generally was at its lowest ebb ”

Finally the salient features of the medical arrangements for the battle of Ctesiphon were “Lack of transport, lack of medical units, lack of a proper system for evacuation—” indeed a comprehensive indictment.

On page after page these criticisms are repeated, and the same lesson is driven into us—the utter folly of embarking on a campaign without previous organization of the administrative requirements.

In May 1916 the re-organization of the medical services was carried out and thereafter the medical history of the campaign became a very different story.

Chapters XVII to XXII deal with the operation in East Africa. Here again both medical units and medical transport were insufficient. Difficulties were enhanced by the nature of the country in which the operations had to be undertaken, while the operations themselves, consisting of the pursuit of a clever and mobile enemy, would have accounted for great hardships even had medical organization been perfect. Again, however, the arrangements suffered from want of forethought and want of previous organization.

Referring to the operations in Aden, in Chapter XXI, we find a repetition of a very similar story. Water and ice were lacking as were the means of evacuation.

The account of the campaign in North Russia given in Chapter XXII is very interesting as it deals with the unusual conditions of medical organization required under arctic conditions, and with the precautions which have to be undertaken to avoid the effects of intense cold and diseases directly due to it.

The absence of typhus is noteworthy and was probably due to the exceptional bathing facilities afforded by Russian baths. The following chapter describes the various means of transporting sick and wounded from the field of battle. Some of the methods appear uncomfortable and dangerous. One at least—the Bullock Tonga—will soon, it is hoped, be relegated to its proper sphere—that of a museum specimen.

In the above lines we have perhaps harped too much on the failures and mistakes which were made. To one who reads the volume carefully, however, every page will be found to teem with the records of a tireless and devoted struggle against permanent disablement, disease and death, carried on by the medical officers with the troops. Of this we have said little, for we have no doubt that the qualities of fortitude and endurance displayed will again be apparent when next our army goes forth to war. These characteristics are inherent in the race and are

neither to be questioned nor taught. We have therefore preferred to direct attention to such matters as can be remedied by organization and foresight when preparing our resources for a future war.

"Imperial Military Geography," By CAPTAIN D. H. COLE, M.B.E.,
Army Educational Corps, 2nd edition, enlarged, 1924 (Oct.).

Published by Sifton Praed and Co., London, 10s. 6d.

This handy little book gives an outline of the "General characteristics of the Empire in relation to defence" in a form that is eminently readable and valuable as a book of reference for a student of this important subject. It is of especial value to military officers studying for the Staff College or other professional examinations.

The opening chapter on "Imperial resources" brings into clear relief the function of Great Britain as the *main Imperial base*, and also the vital importance of the sea communications connecting the various component parts of the Empire. The author then proceeds to outline the functions of the navy and of the Imperial Naval bases in policing and protecting these communications, separate chapters being devoted to the Mediterranean and Indian Oceans, the Atlantic and Pacific. Subsequently the development of air routes and the relative values of airships and aeroplanes for those routes are discussed, also such important questions as Empire supplies of fuel, coal and oil, also cable and wireless systems of inter-communication.

The author next turns to the subject of land features and frontiers, and, after dealing with it on general lines, devotes a chapter to each of the more important portions of the Empire, the last of which, entitled "The Gate-ways of India" is of special interest to readers in this country, giving as it does a birdseye-view of the geography of the North-West Frontier and Afghanistan, a summary of the conflicting factors affecting frontier policy, and a brief resume of the functions and organization of the army in India.

The final chapter surveys the organization of the Empire as a whole, the constitution and form of Government of its component parts, the various bonds of union between those parts, and the measures adopted to strengthen those bonds by successive Imperial Conferences.

The book is well illustrated, containing no less than 20 maps, and a special and most useful feature is a list of reference books at the end of each chapter, showing where more detailed information may be found.

"The Journal of the National Horse Breeding and Show Society of India." By MAJOR-GENL. W. B. JAMES, 1925, Vol. I, No. 1. Edited by Major-Genl. W. B. JAMES, C.B., C.I.E., M.V.O., Director of Remounts, India. Printed by Liddell, Simla.

The first number of the Journal of the above named Society is an attractive publication of a kind badly needed in the present day when we are so apt to think in terms of machines and to forget that, for many a long day the world will need horses, not a few horses, but many horses, to work in co-operation with mechanically propelled vehicles.

The interest taken in Horse Breeding in India by their Excellencies the Viceroy and the Commander-in-Chief is evident from their letters to General James, the President of the Society, which are reproduced.

All who are interested in Horse Breeding, Racing, Polo, Hunting, Pigsticking and Horse Shows will welcome the introduction of a journal giving first hand information about what is happening. Others not so deeply interested will find in its pages much that is educative and designed to stimulate their interest in horses. I refer to those whom one often hears remark, "I never go to a race-meeting unless there is a 'chase','" or "The only thing I like about a horse show is the jumping," remarks that perhaps indicate ignorance of the finer points of the horse coupled with a desire for thrills.

It is hoped that the Society will see its way to publishing a vernacular as well as an English edition of the Journal.

"The Military Uses of Astronomy." By MAJOR F. C. MOLESWORTH, R.E., F.R.A.S., Foreword by Gen. Sir W. R. BIRDWOOD. Published by Longmans Green, London, at 3s. 6d.

As an adjunct to the Manual of Map Reading and as an easy guide to the studious but hardworked officer this is a valuable work. Major Molesworth is to be congratulated on producing a book which, while of a scientific flavour, does not take too much for granted. The frequent examples and diagrams are excellent,

It would perhaps be too much to say that every officer should be in possession of a copy, for the earnest soldier has already so many books with whose contents he is expected to be familiar, that the advent of yet another brings us very near the final straw.

There is no doubt, however, that no regimental scout officer should be without a copy. No officer sent on geographical exploration should consider his kit complete without one, unless he is already an accomplished astronomer. Every Mess, Bde. and District Library should contain a copy.

There are various small errors in places, but none of these affect the military value of the book and they will doubtless be corrected in the next edition.

The diagrams on page 24 and in Appendix II, while instructive, are too small to be of practical use. In a book of this size, this of course cannot be helped, but if students wish to use these diagrams in actual study they must copy them on to larger sheets of squared paper. Figure 15 on page 26 would be clearer if lettered in accordance with the text.

Chapters X and XI, dealing with direction and time by the stars, are particularly valuable and could be studied with advantage by every Regimental Scout Officer.

Major Molesworth has placed his brother officers under a distinct obligation by his publication of this most useful book. In addition it is very well indexed and well bound.

"Modern European History." By W. F. REDDAWAY. (Published by Arnolds, London, at 7s. 6d.)

A general sketch of European History from 1492 to 1924. Written in a very lucid and interesting style, it gives a clear outline of the events which have combined to make the Europe of today.

The history is divided into seven parts, each dealing with a special era. Only the last fifty-six pages (Part VII) are however of any direct value to the Staff College candidate taking modern history as an optional subject, although if he has time to read the whole book he will find it easier to understand the happenings of the period appointed for the examination.

"A Scheme of Preparation for the Staff College Entrance Examination." By CAPT. W. H. BISHOP. (Sifton, Praed and Co., 2s. 6d.)

This is a book which we frankly cannot recommend to officers studying for the examination. It consists chiefly of a stringing together of platitudes, not always well selected, and little emphasis is placed on the more important points in connection with study of this nature.

The author's accuracy, moreover, is not, always above reproach—he is in fact at times seriously misleading. Several pages for instance, are devoted to the question of operation orders. We can find no mention of the need for being clear and concise, perhaps the most important points of all in this connection. The specimen order is full of mistakes. The author falls into such obvious errors as the failure to allot frontages to battalions in the attack. There are also numerous mistakes in the abbreviations used, while even the heading is not in accordance with the latest edition of Field Service Regulations.

To students in search of assistance of this nature we recommend the Article by Col. Comdt. McNamara, C.M.G., D.S.O., which appeared in our number of July 1924.

"Princes of Wales." By F. M. BRIDGE. (Published by H. F. W. Deane, London, 8s. 6d.)

The person who eventually unravels the secret of a bird's flight, in order adequately to advertise the fact, will doubtless produce a treatise on the art of flying, tracing its progress from the crude efforts of early days, through the ages of increasingly efficient mechanical contrivances, up to the advent of the real article.

F. Maynard Bridge in his "Princes of Wales" evidently employs this method to lead the reader up to the chapter on H. R. II. the Prince of Wales at the end of the book.

As a short sketch the book is of interest to a youthful student of English History, mainly on account of the numerous anecdotes it contains, and one can well imagine the joy with which a school boy would welcome it as a book of study. It is, moreover, undoubtedly written in an attractive style.

We are inclined to agree, however, with the author when he admits in his preface that the portraits of the Princes which appear throughout the book, are likely to be to many the most

interesting part of his work, and amongst the many we include the student of military history, to whom the book is of no real value.

"The Passing Years." By LORD WILLOUGHBY DE BROKE.

(Constable, 1924. 21s.)

This autobiography is of particular interest from three points of view—firstly for its picture of a gallant gentleman, secondly, for its reminiscences of English country life, and thirdly, as a reminder of the political crisis of 1911.

For all or any one of these reasons it is a book well worth reading.

It is difficult to refrain from requesting the quotation in the epilogue:—

"Choose your part from the instinct of your order, from your birth, from your habit, or what not; but having chosen it, follow it to the end."

"History of the Indian Wars." By CLEMENT DOWNING. Edited by WILLIAM FOSTER, C.I.E. [Published by Oxford U. Press, Bombay, 7s. 6d.]

(Oxford University Press, 1924.)

In these days when we are looking forward to the introduction of an airship service between England and India which is likely to reduce the journey to 4 days, it is good for our perspective to refer to the period of Indian history of 200 years ago, when the voyage to India occupied some 7 months.

This volume deals with the adventure of Charles Downing, at various times sailor in East Indiamen, mate in a trading vessel, officer in the armed Naval Forces of the East India Company at Bombay, and captain of artillery in a Moghul Army in Gujarat—and affords a lively description of events of that period.

"Sind—A Re-interpretation"—By J. ABBOTT, I.C.S. [Published by the Oxford U. Press, Bombay. Rs. 5.]

This book is composed of 10 essays, several of which have already appeared in issues of the "Calcutta Review;" others are enlargements from articles in the "Pioneer."

These carefully prepared and instructive essays are bound to prove interesting reading to lovers of Sind, and geographical experts. To those who know not Sind or who are not fortunate enough to be well versed in geographical phraseology and lore, the geographical part of the essays is not always easy to follow.

Although there are maps at the end of the book to illustrate conceptions of the Indus Delta, and the Run of Cutch, there are no general maps of Sind to which the uninitiated can refer, and much of the author's undisputed power of picturesque expression and instruction is undoubtedly lost by the impossibility of conveying his gifts by the mere quotation of names without proper topographical illustrations.

On the historical side the author is on far more interesting ground. In his introduction he says, "I have attempted to verify every reference to native and European record that I have followed and to have a copy of the same for the reader to analyse himself." This saying will carry conviction to all readers and will put them, after the first few pages, on good terms with the author on this aspect of his subject; in fact they will probably feel they are reading reliable and very carefully checked historical facts interestingly told.

While the student will have little to criticise in the author's style, the ordinary reader will perhaps feel impatient at some of the ultra-scholastic phraseology, and at the use, at times, of adjectives which are seldom met with in ordinary literature or conversation. This is a pity, for although it will appeal to the few who, by trade and training, are able to appreciate the niceties of carefully constructed classical sentences, it may prevent others who would be the better for studying this interesting work from taking in the well thought out instruction which the author evidently intends to convey.

On the other hand the author's power of description shows clearly that we have here a true lover of Sind and one who is able to bring the fascination of the desert, the dispiriting scenes of the Delta, of the Indus, and the grandeur of that great river, before our eyes.

To those who have reason to study the subject, or to lovers of Sind, the time spent on reading this book will be well employed. Those who pick it up expecting to pass an hour or two in interesting reading will find it hard to keep their attention fixed throughout, and will perhaps be disappointed.

The JOURNAL of the UNITED SERVICE Institution of India

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United Service Institution of India.

RULES OF MEMBERSHIP.

ALL officers of the Royal Navy, Army, Royal Air Force, Colonial Forces, and of the Auxiliary Force, India, and Gazetted Government Officers shall be entitled to become members without ballot, on payment of the entrance fee and annual subscription.

The Council shall have the power of admitting as honorary members the members of the Diplomatic Corps, foreign, naval and military officers, foreigners of distinction, other eminent individuals, and benefactors to the Institution, not otherwise eligible to become members.

Life Members of the Institution shall be admitted on the following terms:—
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Ordinary members of the Institution shall be admitted on payment of an entrance fee of Rs. 10 on joining, and an annual subscription of Rs. 10, to be paid in advance. The period of subscription commences on 1st January.

Subscribing members of the Royal United Service Institution, Whitehall, London, are not liable for entrance fee while the affiliation rules are in force.

Life members receive the Journal of the Institution post free anywhere, but ordinary members only in India. All members may obtain books from the library on paying V.-P. postage.

Honorary Members shall be entitled to attend the lectures and debates, and to use the premises and Library of the Institution without payment; but should they desire to be supplied with the Journal, an annual payment of Rs. 10, in advance, will be required.

Divisional, Brigade and Officers' Libraries, Regimental Messes, Clubs, and other subscribers for the Journal, shall pay Rs. 10 per annum.

Sergeants' Messes and Regimental Libraries, Reading and Recreation Rooms shall be permitted to obtain the Journal on payment of an annual subscription of Rs. 10.

If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

Members joining the Institution on or after the 1st October, will not be charged subscription on the following 1st January, unless the Journals for the current year have been supplied.

Members are responsible that they keep the Secretary carefully posted in regard to changes of rank and address. Duplicate copies of the Journal will not be supplied free to members when the original has been posted to a member's last known address, and not been returned by the post.

Members or Subscribers to the Journal, intimating a wish to have their Journals posted to any address out of India, shall pay in advance Rupee 1 per annum, to cover foreign postage charges, but Life Members who have left India shall not be liable for foreign postage on Journals.

All communications shall be addressed to the Secretary, United Service Institution of India, Simla.

Contributions to the Journal.

All papers must be written in a clear, legible hand, and only on one side of the paper. All proper names, countries, towns, rivers, etc., must, when in manuscript, be written in capital letters. All plans must have a scale on them.

Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A.R.I., Vol. II, para. 204, and King's Regulations, para. 509.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged; all contributions must be sent to the Secretary under the name of the writer and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

Contributors will be supplied with three copies of their paper *gratis*, if published. Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

MILITARY WIDOWS' FUND,

—BRITISH SERVICE—

THIS FUND enables a British Service (Army) officer, by subscribing from Rs. 6 to Rs. 10 per quarter, to assure, in the event of his death while on the Indian Establishment, immediate payment:—

To his widow	Rs. 5,850	to	Rs. 8,250
For each child	„ 500	to	„ 750

Payments are made immediately on receipt of report of death, irrespective of death occurring in or out of India.

The sum paid to the widow varies with subscription and the sum for each child varies with age of child. Subscriptions are based on the rank of the officer.

Benefits are payable whether the deceased officer's family is residing in India or not.

It is to the advantage of an officer to join the Fund on his first tour of service in India, as otherwise, on joining it in a subsequent tour he would have to pay subscriptions for any previous tours in the country as a married officer, since 1st January 1919.

The Fund (late Queen's Military Widows' Fund) was established in 1820, to assist families of British Service (Army) officers dying in India, and mainly to enable them to return Home without delay.

The Fund is controlled by a Committee consisting of and elected by subscribing officers serving at Army Headquarters, Simla.

For admission and rules apply to:—

The Secretary,
MILITARY WIDOWS' FUND,
Army Headquarters, Simla.

United Service Institution of India.

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The General Officer Commanding-in-Chief, Southern Command.
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(COX'S AND KING'S BRANCH), SIMLA.

1. The United Service Institution of India is situated at Simla.
2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed inside front cover.
3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published.
4. There is a well-stocked library in the Institution, from which members can obtain books on loan free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V.-P. for the postage.
5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members but ordinary members wishing to have their Journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.
6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found in para. IV, Secretary's Notes.
7. Members are responsible that they keep the Secretary carefully posted with regard to changes of address.
8. When on leave in England, members can, under the affiliation rules in force, attend the lectures and make use of the reading-room, etc., of the Royal United Service Institution, Whitehall, on payment of a subscription of 5 shillings per six months.

United Service Institution of India.

JULY, 1925.

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SECRETARY'S NOTES.

I.—New Members.

The following new members joined the Institution from 5th March to 1st June 1925.

Life Member.

Lt.-Colonel H. R. Sandilands.

Ordinary Members.

Captain G. H. Hay.	Squadron Leader E. J. Hodsoll.
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Captain G. C. Ballentine.	Captain S. W. Jones.
Lieut. S. M. Khurshid.	Captain J. M. Blakiston-Houston.
Lieut. C. R. A. Wallis.	Captain V. J. L. Napier.
Lieut. H. F. T. Aldous.	Flight Lieut. W. N. Cumming.
Captain S. R. Cockrill.	Lieut. E. J. Brine.
Captain B. Bradshaw-Smith.	Captain C. R. B. Playford.
Captain E. R. M. Hall.	Captain Malcolm Wykes.
Captain F. H. Skinner.	Captain R. G. Mountain.
Lieut. R. Harvey Gem.	Major J. C. Hooper.
Major G. R. Guild.	Captain A. C. Brooks.
Major-Genl. M. R. W. Nightingale.	

II.—Examinations.

Books on military history and languages with dictionaries are available in the Library. The following list of books may be found useful for reference by officers studying for Promotion Examinations or entrance to the Staff College.

The lists of books presented and purchased as shown in the current year's Journals should also be consulted.

The special periods of military history for future Promotion Examinations are as follows (*vide* I. A. O. 409 and 493 of 1924 and I. A. O. No. 172 of 1925):—

1	2	3	4	5
Serial No.	Date of examination.	Campaign set for the first time.	Campaign set for the second time.	Campaign set for the last time
1	April, 1925 ...	The Russo-Japanese War, 1904, to the Battle of Liao-Yang inclusive.	...	Campaign in Gallipoli (as given in Serial 3, column 3 of Army Order 11 of 1922).
2	October 1925	Operations in Waziristan, 1919-20.	Russo-Japanese War— (a) <i>General Period</i> .—1st May 1904 (Yalu), to 5th Sept., 1904. (b) <i>Special Period</i> .—Battle of Liao-Yang, 23rd Aug. to 5th Sept. 1904.	
3	April, 1926 ...	...	Waziristan (as given in Serial 2, column 3).	Russo-Japanese War (as given in Serial 2, column 4).
4	October, 1926	Campaign of the British Army in 1914 in France and Belgium from the outbreak of hostilities up to and including the operations on 9th Sept., 1914.	...	Waziristan (as given in Serial 2, column 3).

The following Extract of Army Council Instructions, issued for week ending 7th January, 1925, is printed for the convenience of candidates.

* * * * *

4. Examination of Officers for Promotion—Military History.

1. With reference to A. O. 464 of 1924, the period of study of the Russo-Japanese War, 1904, for the examination to be held in April, 1925, will remain as stated in A. O. 106 of 1924.

2. In October, 1925, and April, 1926, the periods of the Russo-Japanese War for examination will be altered to the following:—

(a) General period from 1st May, 1904 (Battle of the Yalu), to 5th September, 1904, both dates inclusive.

(b) Special period. The Battle of Liao-Yang, 23rd August to 5th September, 1904.

3. Candidates will be required to have a knowledge of the tactics employed in the special period, while questions in the general period will be mainly of a strategical nature.

4. Normally 75 per cent. of the question for captains will be taken from the general period and 75 per cent. of the questions for lieutenants from the special period.

5. Both periods will be included in a single three-hour examination paper.

MILITARY HISTORY.

1. *The Campaign of the British Army in France and Belgium up to 20th November, 1914.*

A.—OFFICIAL HISTORY OF THE WAR.

Military Operations, France and Belgium, Vol. I (to October 1914.)

Ditto

ditto

Vol. II (to 20th November, 1914) (in Press).

Sir John French's Despatches.

B.—OTHER BOOKS.

40 days in 1914 (General Maurice, new edition).

- 1914 (Viscount French).

My War Memories (Ludendorff).

General Headquarters 1914—16 and its Critical Decisions (Falkenhayn).

The March on Paris, 1914 (Von Kluck).

Ypres, 1914. (An official account) (German General Staff).

Oxford Pamphlets, August 1914. The Coming of the War. (Spencer Wilkinson).

Oxford Pamphlets, August 1914, Nos. VII and X.

Times Documentary History of the War, Vol. V, Military, Part I.

Times Documentary History of the War, Vol. VIII, Part III.

Der Grobe Krieg: Die Schlacht bei Mons (German General Staff).

Der Grobe Krieg: Die Schlacht bei Longwy (German General Staff).

Story of the Fourth Army (Montgomery).

2. *The Palestine Campaign.*

A.—OFFICIAL ACCOUNTS.—

A Brief Record of the Advance of the Egyptian Expeditionary Force, 1919.

The Australian Imperial Force in Sinai and Palestine (H. S. Gullett).

The New Zealanders in Sinai and Palestine (Lt.-Col. C. G. Powles).

Yilderim (Dr. Steuber).

B.—OTHER BOOKS.

Allenby's Final Triumph (W. T. Massey).

How Jerusalem was Won (W. T. Massey).

Outline of the Egyptian and Palestine Campaigns, 1914 - 18
(Bowman-Manifold).

L'Attaque du Canal de Suez (Douin).

3. *The Gallipoli Campaign.*

Official Account: Official History of the War, Naval Operations,
Vols. II and III.

Gallipoli Campaign (Outline of Military Operations). By A
Student.

Official Despatches.

The Dardanelles (Callwell).

Experiences of a Dugout (Callwell).

Despatches from the Dardanelles (Ian Hamilton).

The Navy in the Dardanelles Campaign (Wemyss).

The World Crisis (Winston Churchill).

4. *The Russo-Japanese War, 1904, up to and including
the battle of Liao-Yang.*

A Staff Officer's Scrapbook (Ian Hamilton).

German Official Account.

Lectures on the Strategy of the Russo-Japanese War (Bird).

Question on the Russo-Japanese War (Brunker).

Official Account: The Russo-Japanese War (Naval and Military), 3 Vols., published by Committee of Imperial Defence,

Outline of the Russo-Japanese War (Ross).

A Study of the Russo-Japanese War (Chasseur).

My Experiences at Nan Shan and Port Arthur (Tretyakow).

Outline History of the Russo-Japanese War, 1904, up to the
Battle of Liao-Yang, with Questions and Answers (P. W.)

A short account of the Russo-Japanese War ("Footslogger").

5. *Organization of Army since 1868.*

A.—ORGANIZATION OF ARMY SINCE 1868.

History of British Army, by Fortescue. Vols. I to XI.

Outline of the Development of British Army, by Maj.-Genl.
Sir W. H. Anderson.

Our Fighting Services, by Sir Evelyn Wood.

B.—FORCES OF THE EMPIRE.

The Statesman's Year Book.

Army List.

Articles in Newspapers and Magazines, viz., R. U. S. I.

Army Quarterly, Journal of the U. S. I. of India, etc.

6. *Development and Constitution of the British Empire.*

A.—THE BRITISH EMPIRE.

Encyclopædia Britannica—(contains much concentrated information).

The Statesman's Year Book.

Whitaker's Almanack.

The Colonial Office List.

The Government of the British Empire (Jenks, 1923).

The Foundation and Growth of the British Empire (J. A.
Williamson, 1918).

The Beginnings of English Overseas Enterprise (Sir C. P.
Lucas, 1917).

The British Empire Series. (XII volumes).

The Government of England (L. A. Lowell, 1912).

The Expansion of the British Empire (W. H. Woodward,
1921 and 1924 edition).

Overseas Britain (E. F. Knight, 1907).

The Origin and Growth of the English Colonies and of Their
System of Government (H. E. Egerton, 1903).

A Short History of Politics (Jenks, 1900).

The English Constitution (Bagehot, 1909).

The Expansion of England (Sir J. Seely, 1883).

Introduction of the Study of the Law of the Constitution
(A. V. Dicey, 1908).

England in the Seven Years' War (Sir J. Corbett, 1907).

Selected Speeches and Documents on British Colonial Policy,
2 Vols. (A. B. Keith, 1918).

B.—BOOKS ON SPECIAL PORTIONS OF THE EMPIRE OR WORLD.

The Rise and Expansion of British Dominions in India (Sir
A. C. Lyall, 1894).

A Brief History of the Indian Peoples (Sir W. H. Hunter,
1907).

The Nearer East (Hogarth, 1902).

Modern Egypt (Cromer, 1908).

Egypt and the Army (Elgood, 1924)

The History of Canada (W. L. Grant).

Nova Scotia (B. Wilson, 1911).

Report on British North America (Sir C. P. Lucas).

The Union of South Africa (R. H. Brand, 1909).

Short History of Australia (E. Scott).

History of the Australasian Colonies (Jenks, 1912).

The English in the West Indies (J. A. Froude, 1888).

The Lost Possessions of England (W. F. Lord, 1896).

7. *Military Geography.*

Naval and Military Geography of the British Empire (Dr.
Vaughan Cornish, 1916).

Elementary Imperial Military Geography (Capt. D. H. Cole,
1924).

Introduction of Military Geography (Col. E. S. May).

Imperial Defence (Col. E. S. May).

Main Feature of the Japanese and other Pacific Problems.
(Reprinted from "Morning Post." Sifton Præd.)

Britain and the British Seas (H. J. Makinder, 1907).

Military Geography (Macguire).

Imperial Strategy (Repington).

War and the Empire (H. Foster).

Historical Geography of British Colonies (Dominions), 7 Vols.

(Sir C. P. Lucas, 1906—17)—

Vol. 1, Mediterranean.

Vol. 2, West Indies.

Vol. 3, West Africa.

Vol. 4, South Africa.

Vol. 5, Canada.

Vol. 6, Australia.

Vol. 7, India.

The Influence of Sea Power on History (A. T. Mahan, 1890).

Historical Geography of the British Empire (Hereford George).

The Mastery of the Pacific (A. R. Colquhoun, 1902).

Frontiers (C. B. Fawcett, 1918).

III.—Payment for Articles in the Journals.

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

IV.—Contributions to the Journal.

Articles submitted for publication must be typed in *duplicate*. With reference to Army Regulations, India, Volume II, paragraph 204 and King's Regulations, paragraph 509, action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee.

Instructions for the preparation of drawings and plans for reproduction by lithography.

These should be in *jet* black. No washes or ribands of colour should on any account be used.

If it is absolutely necessary to use colour (and these are only permissible in line work or names) the following will reproduce photographically, *i.e.* :—

Dark red, dark orange, dark green. No other colour should on any account be used.

V.—Library Rules.

1. The Library is only open to members and honorary members of the United Service Institution of India. Members are requested to look upon books as not transferable to their friends.

2. No book shall be taken from the Library without making the necessary entry in the register. Members residing permanently or temporarily in Simla are requested to enter their addresses.

3. The United Service Institution of India is open all the year round—including Sundays—from 9 A.M. until sunset. Books may be taken out at any time provided Rule 2 is complied with.

4. A member shall not be allowed, at one time, more than three books or sets of books.

5. Papers, magazines, "works of reference" or books marked "Not to be taken away," or noted as "Confidential" may not be removed.

6. No particular limit is set as to the number of days for which a member in Simla may keep a book, the Council being desirous of making the library as useful as possible to members; but if after the expiration of a fortnight from date of issue it is required by any other member it will be re-called.

7. Applications for books from members at out-stations are dealt with as early as possible, and books are despatched per Registered V.-P. P. They must be returned carefully packed per Registered Parcel Post within one month of date of issue, or application made for permission to retain them for a further period. This will always be granted unless the book is required by another member.

8. If a book is not returned at the end of four months, it must be paid for without the option of return, if so required by the Executive Committee.

9. Lost and defaced books shall be replaced at the cost of the member to whom they were issued. In the case of lost books which are out of print the value shall be fixed by the Executive Committee, and the amount, when received, spent in the purchase of a new book.

10. The issue of a book under these rules to any member implies the latter's compliance with the rules, and the willingness to have them enforced, if necessary, against him.

11. A list of all books presented and purchased, and also a list of books useful to members studying for the Staff College and Promotion Examinations, will be found under Secretary's Notes in the quarterly issue of the U. S. I. Journal. Members are invited to note any books which they think might with advantage be procured for the Institution.

12. Members are invited to contribute presents of books, maps, and photographs of naval and military interest. These may be addressed to the Secretary, U. S. I. of India, Simla. They will be duly acknowledged.

VI.—Library Catalogue.

The new catalogue completed to 31st March 1924 is now available. Price Rs. 3-8-0 or postage paid Rs. 3-14-0.

VII.—Gold Medal Prize Essay.

The following essays have been received for the 1924-25 competition:—

1. The old order changeth yielding place to new.
2. Sapiens qui prospicit.
3. Festina Lente.
4. Phulakteon.
5. Honesty is the best policy.
6. Experientia Docet.
7. Virtus laudata crescit.

VIII.—Army List pages.

The U. S. I. is prepared to supply members and units with manuscript or type-written copies of Indian Army List pages, at the rate of Rs. 2 per manuscript or type-written page.

IX.—

Books Presented.

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
1. Organization for War within an Infantry Battalion.	1924	Col. T. N. S. M. Howard.
2. Military Geography of the British Commonwealth.	1924	Major A. E. W. Salt.
(Both the above presented by Messrs. Gale and Polden, Aldershot.)		

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
3. Study of War	... 1924	Admiral Sir R. Custance.
(Presented by Oxford University Press, Bombay.)		
4. Sir John Moore's System of Training.	1924	Fuller.
(Presented by the Publishers, Hutchinson & Co., London.)		
5. Report on the Staff Exercises held at Delhi.	1924	
6. Command and Conduct of Operations for Forces consisting of All Arms.	1924	
7. Breaches made on Indian Railways during Mousoon.	1924	
8. Indian Corps in France	... 1917	Lieut-Col. J. W. B. Merewether and The Rt. Hon'ble Sir Fredrick Smith.
(All the above presented by the General Staff Branch.)		
9. Shrimed Dayanand Prakash..	1924	Shri Swami Satya Nand.
(Presented by Pt. Thaukar Datt Vaid, Amrit Press, Lahore.)		
10. Brief History of the Royal Bombay Sappers and Miners.	1924	
(Presented by the Commandant, Royal Bombay Sappers and Miners, Kirkee.)		
1. Regimental History 4/2nd Punjab Regiment. (Extract from the Regimental Record of 74th Punjabis.)	n. d.	
(Presented by the Commandant, 4/2nd Punjab Regiment, Phelun.)		

Books Purchased

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
1. Yilderim	1924	Dr. Steuber.
2. Development of Airship with special reference to transport (Pamphlets only, 2 copies.)	1924	Commandant C. D. Burney.
3. Britain and Her Commonwealth, 2 copies.	1924	F. J. Gould.
4. Empire at War, Vol. IV ..	1924	Sir Charles Lucas.
5. Study of War	1924	Admiral Sir R. Custance.
6. History of the Great War, France and Belgium, Vol. 11.	1925	Brig.-General J. E. Edmonds, Comp.
7. Battle of Jutland	1924	
8. Racial Realities in Europe ...	1924	Lothrop Stoddard.
9. Short Account of Russo-Japanese War.	1925	"Footslogger."
10. Tannenberg—First Thirty Days in East Prussia.	1925	Edmond Irouside.

Books on Order.

1. The New World-Problems in Political History. 1924 I. Bowman.
2. Memoirs of 48 years' service ... 1924 Smith Dorriens.

X.—Pamphlets.

The following are available for sale on application to the Secretary :—

- (a) British and Indian Road Space Tables (separately). Price as. 8 each, plus postage. It is suggested that these may be useful for staff rides, etc.
- (b) Diagram of Ammunition Supply (India). Price as. 4, plus postage.
- (c) Skeleton Diagram of Signal Communications of a Division. Price as. 6, plus postage.
- (d) Home War Establishment Tables (provisional). Price Re. 1-4-0 per copy, plus postage.

XI.—Schemes.

The following schemes based on lectures given at the course for officers studying for the Staff College Entrance Examination, are now available for sale, on application to the Secretary :—

(a) Mountain Warfare (with four problems). Price Rs. 4, plus postage.

(b) Administration (with one problem). Price Rs. 2, plus postage.

(c) Artillery (with one problem). Price Rs. 2, plus postage.

To save expense to officers, maps, other than sketch maps, are not being supplied by the Institute. It is thought that the maps required will be readily obtainable by students.

These are for (a) Survey of India maps of Waziristan and Baluchistan, and for (b) and (c) Map 1/100,000 Rheims (1st Training for War Paper. Staff College Entrance Examination, 1924).

In addition three Tactical Schemes suitable for Promotion Examination are available. (Price Rs. 5 each, with maps).

(d) Captain to Major—2 Schemes.

(e) Lieut. to Captain—1 Scheme.

Other Schemes are in preparation.

United Service Institution of India.

Prize Essay Gold Medalists.

(With rank of Officers at the date of the Essay)

- 1872.. ROBERTS, Lieut.-Col. F. S., V.C., C.B., R.A.
 1873.. COLQUHOUN, Capt. J. S., R.A.
 1874.. COLQUHOUN, Capt. J. S., R.A.
 1879.. ST. JOHN, Maj. O. B. C., R.E.
 1880.. BARROW, Lieut. E. G., 7th Bengal Infantry.
 1882.. MASON, Lieut. A. H., R.E.
 1883.. COLLEN, Maj. E. H. H., S.C.
 1884.. BARROW, Capt. E. G., 7th Bengal Infantry.
 1887.. YATE, Lieut. A. C., 27th Baluch Infantry.
 1888.. MAUDE, Capt. F. N., R.E.
 YOUNG, Maj. G. F., 24th Punjab Infantry (specially awarded
 a silver medal).
 1889.. DUFF, Capt. B., 9th Bengal Infantry.
 1890.. MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.
 1891.. CARDEW, Lieut. F. G., 10th Bengal Lancers.
 1893.. BULLOCK, Maj. G. M., Devonshire Regiment.
 1894.. CARTER, Capt. F. C., Northumberland Fusiliers.
 1895.. NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.
 1896.. BINGLEY, Capt. A. H., 7th Bengal Infantry.
 1897.. NAPIER, Capt. G. S. F., Oxfordshire Light Infantry.
 1898.. MULLALLY, Maj. H., R.E.
 CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a
 silver medal).
 1899.. NEVILLE, Col. J. P. C., S.C.
 1900.. THUILLIER, Capt. H. F., R.E.
 LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).
 1901.. RANKEN, Lieut.-Col. G. P. P., 46th Punjab Infantry.
 1902.. TURNER, Capt. H. H. F., 2nd Bengal Lancers.
 1903.. HAMILTON, Maj. W. G., D.S.O., Norfolk Regiment.
 BOND, Capt. R. F. G., R.E. (specially awarded a silver medal).
 1904.. MACMUNN, Maj. G. F., D.S.O., R.F.A.
 1905.. COCKERILL, Maj. G. K., Royal Warwickshire Regiment.
 1907.. WOOD, Maj. E. G. M., 99th Deccan Infantry
 1908.. JEUDWINE, Maj. H. S., R.A.
 1909.. MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.
 ELSMIE, Maj. A. M. S., 56th Rifles, F. F. (specially awarded
 a silver medal).
 1911.. Mr. D. PETRIE, M.A., Punjab Police.
 1912.. CARTER, Maj. B. C., The King's Regiment.
 1913.. THOMSON, Maj. A. G., 58th Vaughan's Rifles (F.F.).
 1914.. BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs (F.F.).
 NORMAN, Maj. C. L., M.V.O., Q.V.O., Corps of Guides (specially
 awarded a silver medal).
 1915.. No Award.
 1916.. CRUM, Maj. W. F., V.D., Calcutta Light Horse.
 1917.. BLAKER, Maj. W. F., R.F.A.
 1918.. GOMPERTZ, Capt. A. V., M.C., R.E.
 1919.. GOMPERTZ, Capt. M. L. A., 108th Infantry.
 1920.. KEEN, Lt.-Col. F. S., D.S.O., 2/15th Sikhs.
 1921.. No Award.
 1922.. MARTIN, Maj. H. G., D.S.O., O.B.E., R.F.A.
 1923.. KEEN, Colonel F. S., D.S.O., I.A.
 1924.. No award.

MacGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—silver medal.

(b) For soldiers—British or Indian—silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

Note.

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council Meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

MacGregor Memorial Medalists.

(With rank of officers and soldiers at the date of the Award.)

1889.. BELL, Col. M. S., v.c., R.E. (specially awarded a gold medal).

1890.. YOUNGHUSBAND, Capt. F. E., King's Dragoon Guards.

* *N.B.*—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves, also those serving in Auxiliary Forces, such as the Indian Auxiliary and Territorial Forces and Corps under Local Governments, Frontier Militia, Levies and Military Police, also all ranks serving in the Imperial Service Troops.

MacGregor Memorial Medalists—(contd.).

- 1891.. SAWYER, Major H. A., 45th Sikhs.
RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.. VAUGHAN, Capt. H. B., 7th Bengal Infantry.
JAGGAT SINGH, Havildar, 19th Punjab Infantry.
- 1893.. BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).
FAZALDAD KHAN, Dafedar, 17th Bengal Cavalry.
1894. O'SULLIVAN, Major G. H. W., R.E.
MULL SINGH, Sowar, 6th Bengal Cavalry.
- 1895.. DAVIES, Capt. H. R., Oxfordshire Light Infantry.
GANGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.. COCKERILL, Lieut. G. K., 28th Punjab Infantry.
GHULAM NABI, Sepoy, Q. O. Corps of Guides.
- 1897.. SWAYNE, Capt. E. J. F., 10th Rajput Infantry.
SHAHZAD MIR, Dafedar, 11th Bengal Lancers.
- 1898 WALKER, Capt. H. B., Duke of Cornwall's Light Infantry.
ADAM KHAN, Havildar, Q. O. Corps of Guides.
- 1899.. DOUGLAS, Capt. J. A., 2nd Bengal Lancers.
MIHR DIN, Naik, Bengal Sappers and Miners.
- 1900.. WINGATE, Capt. A. W. S., 14th Bengal Lancers.
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.. BURTON, Maj. E. B., 17th Bengal Lancers.
SUNDAR SINGH, Colour Havildar, 31st Burma Infantry.
- 1902.. RAY, Capt. M. R. E., 7th Rajput Infantry.
TILBIR BHANDARI, Havildar, 9th Gurkha Rifles.
- 1903.. MANIFOLD, Lieut.-Col. C. C., I.M.S.
GHULAM HUSSAIN, Lance-Dafedar, Q. O. Corps of Guides.
- 1904.. FRASER, Capt. L. D., R.G.A.
MOGHAL BAZ, Dafedar, Q. O. Corps of Guides.
- 1905.. BENNICK, Maj. F., 40th Pathans (specially awarded gold medal).
MADHO RAM, Havildar, 8th Gurkha Rifles.
- 1906.. SHAHZADA AHMAD MIR, Risaldar, 36th Jacob's Horse.
GHAFUR SHAH, Lance-Naik, Q. O. Corps of Guides Infantry.
- 1907.. NANGLE, Capt. M. C., 92nd Punjabis.
SHEIKH USMAN, Havildar, 103rd Mahratta Light Infantry.
- 1908.. GIBBON, Capt. C. M., Royal Irish Fusiliers.
MALANG, Havildar, 56th Punjab Rifles.
- 1909.. MUHAMMAD BAZA, Havildar, 106th Pioneers.

MacGregor Memorial Medalists—(concl'd.).

- 1910.. SYKES, Maj. M., C.M.G., late 2nd Dragoon Guards (specially awarded a gold medal).
 TURNER, Capt. F. G., R.E.
 KHAN BAHADUR SHEER JUNG, Survey of India.
- 1911.. LEACHMAN, Capt. G. E., The Royal Sussex Regiment.
 GURMUKH SINGH, Jemadar, 93rd Burma Infantry.
- 1912.. PRITCHARD, Capt. P. P. A., 83rd Wallahabad Light Infantry (specially awarded a gold medal).
 WILSON, Lieut. A. T., C.M.G., 32nd Sikh Pioneers.
 MOHIBULLA, Lance-Dafedar, Q. V. O. Corps of Guides.
- 1913.. ABBAY, Capt. B. N., 27th Light Cavalry.
 SIRDAR KHAN, Sowar, 39th (K.G.O.) Central India Horse.
 WARATONG, Havildar, Burma Military Police (specially awarded a silver medal).
- 1914.. BAILLY, Capt. F. M., I.A. (Political Department).
 MORSEHEAD, Capt. H. T., R.E.
 HAIDAR ALI, Naik, 106th Hazara Pioneers.
- 1915.. WATERFIELD, Capt. F. C., 45th Rattray's Sikhs.
 ALI JUMA, Havildar, 106th Hazara Pioneers.
- 1916.. ABDUR RAHMAN, Naik, 21st Punjabis.
 ZARGHUN SHAH, Havildar, 58th Rifles (F. F.) (specially awarded a silver medal).
- 1917.. MIAN AFRAZ GUL, Sepoy, Khyber Rifles.
- 1918.. NOEL, Capt. E. W. C. (Political Department).
- 1919.. KEELING, Lt.-Col. E. H., M.C., R.E.
 ALLA SA, Jemadar, N.-E. Frontier Corps.
- 1920.. BLACKER, Capt. L. V. S., Q. V. O. Corps of Guides.
 AWAL NUR, C. Qm. Havildar, 2nd Bn., Q. V. O. Corps of Guides.
 (Special gratuity of Rs. 200.)
- 1921.. HOLT, Major A. L., Royal Engineers.
 SHEER ALI, Sepoy No. 4952, 106th Hazara Pioneers.
- 1922.. ABDUL SAMAD SHAH, Capt., O.B.E., 31st D. C. O. Lancers.
 NUR MUHAMMED, Lance-Naik, 1st Guides Infantry, F. F.
- 1923.. BRUCE, Capt. J. G., 2/6th Gurkha Rifles.
 SOEBAT, Head Constable, N.-W. F. Police.
 HARI SINGH THAPA, Survey Department.
- 1924.. HAVILDAR RAHMAT SHAH, N.-W. F. Corps.
 NAIK GHULAB HUSSAIN, N.-W. F. Corps.
- 1925.. SPEAR, Captain C. R., 5/13th Frontier Force Rifles.
 JABBAR KKAN, NAIK, 5/13th Frontier Force Rifles.

The Journal

OF THE

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Vol. LV JULY, 1925 No. 240.

EDITORIAL.

Almost exactly twenty-five years ago our troops were embarking for that cosmopolitan expedition which followed the Boxer rising in China. To-day the situation in that country again gives rise to the most serious apprehension, and there is little hope of an early improvement. The actual position is at present very obscure, information from most of the country is conflicting and scanty, and it would be a bold man who would prophesy what the immediate future may bring forth.

This much is, however, perfectly clear. Bolshevism, chiefly through the agency of the Kuo Min Tang, has gained much ground throughout the country, and serious disorders coupled with attacks on foreigners are of almost daily occurrence. The most serious aspect of the case is that the Government appear to be, for the moment, completely cowed by the Bolshevist element, and carefully distorted versions of the affair in Canton are being utilised to draw the previously hostile forces into the Bolshevist net.

The British Empire, as one of the chief representatives of law and order throughout the greater part of the East, and in fact throughout the world, is the natural enemy of Bolshevism, and it is not surprising to find therefore that the most virulent part of the anti foreign feeling is being directed against everything British, though in this respect the Japanese appear to run us closely. The anti-British feeling is the more serious since our trade interests in China are enormous, while a numerous British mercantile community is scattered throughout the larger cities.

How to find a cure for this is an extremely difficult problem. As is usual in such situations, there are two principles which should govern our conduct, but each of which conflicts seriously with the other. In the first place, it is perfectly obvious that no nation which aspires to hold up its head as a power in the world can afford to allow its subjects to be slaughtered and its perfectly legitimate trade interests to be reft from it by force. No nation and no Government is fit to survive which is not prepared to protect these by armed force as a last resort when all other means have failed.

On the other hand, there is no country in the world with which we desire hostilities less than with China, on grounds both of sentiment and of policy. Looking at the matter from the lowest and most material point of view, there is little to be gained and much to be lost by armed intervention in that country, with its population of hundreds of millions, its immense distances, and its lack of military objectives of decisive value. But, in our opinion, this does not represent the most potent argument against military action. We could with certainty, were the occasion forced on us, defeat any military forces which the Chinese might put in the field, while we could occupy important points of her territory and certain of her cities. All this, however, would be a mere flea bite at the edge of her vast dominions, and it would be impossible for us to bring home to her population a sense of defeat, even when we had secured her formal submission by a great military effort.

Military success of this nature would be the beginning, not the end of our difficulties. The defence of British interests throughout the whole Pacific is one of the vital problems which the Empire has to face. So long as China, with her teeming population and her long sea-board, remains friendly to us, the problem is comparatively easy of solution. But with China definitely and permanently hostile, the defence of the Pacific becomes infinitely more difficult. For then, not only does an immense man-power perpetually threaten our Eastern defences, but our lines of communication become flanked by a series of potentially hostile bases.

History has shown that the Chinese, as a race, particularly resent and despise the use of force. This was very clearly shown by the loss of European prestige which followed the expedition of 1900-01. Chinese forces in the field are not likely to be difficult to overcome. The difficulty lies in eradicating the resentment

and contempt with which her vast population and her philosophic intelligentsia regard the users of brute force.

The more force we use, in fact, the less likely we are to arrive at that friendly understanding and mutual respect which we so much desire and which is so necessary to us.

In the meantime, no solution of our difficulties is to be anticipated until a settlement has been reached between the parties led by Chang Tso-lin and Feng Yu-hsiang, his Red opponent. Only when their differences have been settled, either by force or by agreement, and when a more stable government of some kind has been introduced, can we hope for a real improvement in the situation.

One good symptom appears to be the solidarity and co-operation between ourselves and the Japanese, which should go far to ease matters. There is little doubt, however, that we are face to face with a situation which may well tax to the uttermost both our national forbearance and our national determination.

* * * * *

It is impossible to study the situation in North-West Africa without feeling the deepest sympathy for our neighbours and late comrades the French. The crying want of every country in the world at the present moment is that for peace to allow of financial and industrial reconstruction. In no country is the need greater than in France, for there is no doubt that she is at present, and will be for some years to come, at her wits' end financially. Yet it is at this very moment that she is faced with the choice between conducting an arduous and expensive campaign against the Riffs, or of allowing a situation to arise which may well threaten the peace of the whole of her North African dependencies.

Her frontier with the Riffs is, like all frontiers drawn on a basis of international agreement and compromise, singularly unsuited for defence against a mobile and vigorous enemy. It is long, broken, and ill provided with communications. It is in fact exactly the type of frontier which requires an abnormal number of troops if hostile incursions are to be prevented by any form of passive defence. It has, moreover, the further disadvantage of lack of depth in rear for manœuvre to protect the very important lateral line of communication which lies behind its whole length — the railway running from Casablanca, Rabat and Sale, through

Meknes and Fez to Oudja and linking up Northern Morocco, Oran and Algiers with the Atlantic. A frontier of this nature can in practice only be defended by a vigorous offensive against the hostile centres across the border, and in such an offensive appears to lie the only solution of the present situation.

The Riffs are well armed, and, for uncivilised tribesmen, are well led, while they have proved themselves stout fighting men, as indeed might be expected of the descendants of these daring and valiant Nordic tribes who overthrew Imperial Rome. But it is not the hostility of the Riffs wherein lies the greatest danger to France. The country through which her main North African artery lies consists of a long and narrow valley, overlooked both from the North and from the South by ranges of rugged hills. To the North, the Riffs are already up in arms. But to the South lie the ranges of the Middle and Greater Atlas whose warlike highlanders are as yet unbroken and unsubdued. It only requires a little hesitation on the part of France—a delay which can be attributed to fear, or an initial set-back of a serious nature, and, instead of having to face North alone, her troops will have to look to the South as well. As in all tribal trouble, the danger does not lie so much in the actual as in the potential. Given an initial reverse and the cry of "Jehad," and France may well find herself fighting hard for the whole of her North African territory which she has won at such cost and in which she rightly takes so great a pride. Already, indeed, signs are not wanting of trouble and unrest in the more settled parts of Morocco, while here, as elsewhere the Bolsheviks, like the bacilli of some horrid disease, seek to inflame every possible nucleus of disorder.

The solution lies, no doubt, in a carefully staged offensive campaign against the Riffs, possibly from the Spanish Coast. France must make no ill-prepared or rash advance, for a reverse may increase her difficulties a hundred fold. On the other hand, she cannot afford to delay too long her decisive offensive, for every day's delay will increase the doubts of her determination and will give more opportunity for the trouble to spread. This then is the problem which her leaders are called upon to face, and faced it must be, in spite of all her domestic troubles and financial difficulties.

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The only possible justification for the upkeep of great navies, great armies, and great fleets of aircraft, is the protection of what is best in our modern civilisation against the powers of evil. To

uphold justice, to maintain the rights of the weak against the rule of unrestrained force, and, above all things, to enforce the sanctity of those international agreements on which civilisation depends, such are the only grounds on which great armed forces can justifiably be maintained.

When we read, therefore, in the daily press, suggestions based on agreements forbidding the bombing of centres of civilisation, and banning chemical warfare, we read very great rubbish indeed. To put national trust, and to base defensive measures on agreements of this nature, is merely to put a premium on duplicity, for no agreement is easier to put aside, and the infraction of none carries more profit to the dishonest.

We might have a very complete and binding treaty with a certain section of the Mahsuds, swearing to unlimited friendship. But would we applaud an officer who trusted in it sufficiently to walk into one of their villages alone and with an unloaded rifle? If he got his throat cut and his rifle stolen we would not greatly sympathise with him. I think most of us would say that he got exactly what he asked for—no more and no less. And yet this is exactly what a nation does which puts its trust in international agreements of this kind, for the mass psychology of civilised nations differs little from that of the individual Mahsud. A too-trusting nation offers the strongest possible temptation to each possible opponent, and, at the same time, imposes no deterrent whatever on one which may be inclined to succumb to temptation. It not only places a mighty weapon at the sole disposal of the powers of wickedness, but it actually encourages them to use it.

In actual fact, so great is the handicap imposed on the nation which fails to make use of chemical warfare, and so great is the advantage in favour of one which does, that every nation, whatever agreement it may have signed, will be compelled to be prepared completely for its use in the event of a violation of the arrangement by the other side. Thus the means of waging chemical warfare will always be ready and at hand, a permanent and powerful temptation to both sides.

And here, in our opinion, lies the greatest danger of all. When both sides are prepared and ready, and a state of tension exists, each will be deeply suspicious of the bona fides of the other. The slightest suspicion that the one side is about to resort to the use of gas will always be sufficient to set the other off in the hopes of getting his blow in first. Such agreements are, therefore, more

likely to make the use of gas inevitable than is the absence of any arrangement at all.

Whatever agreements we may have entered into in the past, therefore, and whatever we may enter into in the future, the imperfections of human nature still produce a situation in which it behoves every soldier to study chemical warfare in all its aspects, and to ensure that the troops for the training of which he is responsible, are able both to protect themselves against gas, and to use it should occasion arise. No apologies are necessary, therefore, for the publication of the excellent article on chemical warfare which appears in the present number.

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We publish in the present number an article on the principles of war. While we do not altogether agree with our contributor that these have nowhere been clearly enunciated in the past, we do welcome any endeavour towards their clearer definition.

It has always been a matter of the greatest surprise to us that the one which appears to be the most important, and the most universal of these principles, has never, so far as we know, been clearly stated. All the text-book principles have been recognised and considered by the great commanders in the past. All of them, with the exception to which we refer, have been violated, or disregarded, when necessary, and with success. Yet this one inviolable principle is exactly that which has received the least attention from our military writers and in our military text-books.

It may be briefly stated as follows: *The one essential to success in war is energy in carrying out a plan.* History has shown again and again that an ordinary, or even an indifferent plan will succeed, if carried through energetically, while the most brilliant conception is doomed to failure if execution be half-hearted and lethargic.

No more brilliant masterpiece is recorded in the annals of war than Napoleon's plan of campaign in Belgium in 1815. This consisted of a rapid and secret concentration, a sudden and unexpected advance, and an attack which should have overwhelmed the Allied centre. Then came a sudden failure of energy. There was a fatal delay before Ligny which allowed Blucher to concentrate the greater part of his widely scattered forces, followed by a still more fatal failure to pursue him. Again at Waterloo there was a long and unnecessary delay in attacking Wellington. This allowed Blucher to come up in time to take part in the battle, and the whole campaign which had begun so brilliantly, ended in complete disaster.

The difference between the result of energetic action and the reverse is well shown in the later stages of the second Afghan War. Here we see General Roberts, moving rapidly, meeting and overcoming every obstacle with energy, and everywhere successful. On the Kandahar line, exactly the opposite—obstacles magnified, movements slow, and the result—ignominious failure. Nothing could be more striking than the contrast between Robert's rapid and decisive march from Kabul to Kandahar, and the movements of the column toiling slowly and painfully up the southern line. Robert's force it is true was far better equipped with transport than was the southern column. This was not, however, due to any special dispensation of providence, but to Robert's own energy in preparation. Here then is a principle which holds good in all cases, and the disregard of which renders success impossible.

Our contributor has very rightly emphasised the importance of security—that is to say, the prevention of surprise. Under the conditions of modern warfare, surprise, so far as the concentration and movements of troops is concerned, has undoubtedly become more difficult to achieve. This is due to the large amount of preparation required previous to an advance, to air observation, to rapid communication by telegraph and other modern methods, and, above all, to the increased resisting power of modern weapons which allows covering forces to put up a longer resistance.

That strategical surprise is still possible, however, was shown by the Germans in 1914. In spite of a network of telegraph lines, of a carefully prepared intelligence system, and of strategical reconnaissance, the French were ignorant of the direction of advance of the main German forces, until these were almost in position to overwhelm the Allied left. The delaying power of modern fire alone saved the situation, and allowed the French to re-organise their armies and adopt a fresh plan.

The Germans, too, at this period were almost as much in the dark as were the Allies. Even when Von Kluck's advanced guards were in touch with the British close to Mons, the German higher Command still anticipated the appearance of the British Army in the neighbourhood of Lille.

Tactical surprise on a large scale was effected both at Cambrai and at Sharon. In each case concealment of concentration was most carefully studied. At Cambrai the chief instrument in effecting surprise was a variation from the normal preliminaries for attack. The long and heavy bombardment, which up till then had been considered necessary was omitted, and tanks were used in

large numbers to cut the wire for the infantry. At Sharon the concentration against the intended point of attack was carefully concealed, while the enemy was deceived by carefully arranged activity on his other flank. In each case surprise was complete.

Surprise cannot, in modern warfare, be completely prevented by the use of covering troops. These are, as a rule, too close to the main forces to give sufficient time for the preparations now required to meet an attack on a large scale. The difficulty of observation against modern weapons makes it extremely difficult for protective troops to pierce the veil by which they are opposed, and to gain more than a superficial knowledge of the troops opposed to them.

But strategical or tactical surprise is not the greatest danger which modern armies have to fear. Even more ominous is the danger of being surprised by some new scientific weapon—a new gas, a death ray, an improved flying machine or tank. What would have been the result to our armies had the first German gas attack been properly co-ordinated and properly followed up? Sheer disaster—nothing less. This then is the threat which has now to be guarded against, in addition to the old strategical danger.

Security can only be obtained by the organisation in peace of a very efficient intelligence system. This must not only keep in touch in peace with all forms of foreign activity—productive, chemical, mechanical and military—but must be so designed as to continue functioning effectively after the outbreak of war. History has abundantly proved that it is impossible to improvise an efficient intelligence system after the commencement of hostilities, witness the German failure to resuscitate their system in Great Britain after it had once been broken up. Peace preparation of this nature is a highly important, if not the most important, point in national defence. A nation which neglects it in peace, either from national lethargy or miserliness, is likely to meet, in war, the fate which it so richly deserves.

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In the present issue of the Journal a new feature has been introduced, a column entitled Military Notes. This will contain details of the organisation, equipment and changes in Foreign Armies and other matters of general military interest. It is proposed if possible to make this in future a regular feature of

the Journal. We hope this will be of interest to members, particularly to such of them as are studying for the Staff College examination.

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We republish in the present issue an article entitled "The Concealment of Forward Communications from the air in Moving Warfare," which formerly appeared in the *R. E. Journal*. Our thanks are due to the R. E. Institute, Chatham, and to the author, for their kind permission to republish this very interesting article.

SOME PERSONAL RECOLLECTIONS OF THE LATE COMMANDER-IN-CHIEF.

By Major-General Sir Hastings Anderson, K.C.B.

Over twenty continuous years of service, either directly under the orders of the late Commander-in-Chief, or in close contact with him as a Staff Officer, have given me an intimate acquaintance with the development of his great military career; a career, which for all its fruition, still seemed to hold a future rather than a past.

To many whose service has been passed mainly in India, he was known only as the Commander-in-Chief; and so I feel that some more personal recollections may serve to bring closer the great soldier whose loss we have sustained, while that loss is still fresh in all our minds.

It was in 1901, when the South African War was dragging along, its apparently endless way that I first came across Lord Rawlinson, then one of the rising stars among column commanders. Lord Roberts, the Guards Brigade, and the C.I.V., had gone home, to conjure up a vision of defeated Boers and victory before the eyes of the electorate for the "khaki election," and Lord Kitchener had succeeded to the long task of subduing the country by means of mounted columns and blockhouses. My regiment had to send two companies to each of three columns, which were operating primarily in the Western Transvaal; Featherstonhaugh's, Rawlinson's and Hickie's. It was weary work for the infantry of these columns; long marches as escort to the ox convoys, followed by nights on outpost, to rest the mounted troops, who secured the best part of the fighting, and the chickens and eggs at the farms.

And there was no lack of marching with Rawlinson's column. Those who know his tireless energy at 60 will believe, easily enough, that he was no sluggard at 37. He was known to enjoy the favour of Lord Roberts (under whom he had served in India), and of Lord Kitchener, under whom he had served in the Sudan; he was a Guardsman, a baronet, well off, socially popular, extremely active both mentally and physically, hard, fit,

selfconfident, and good to look on. At a time of keen competition, among young and ambitious column commanders, there could not fail to be many who saw all his admitted advantages, but minimised the qualities of energy and drive, quick wit, acceptance of responsibility, knowledge and study of his profession, which lay behind them. And so there grew up among some of those who were passed in the race, and among superficial observers of externals, who form so large a proportion of the Officers of an army, a tradition of good fortune, and exploitation of advantages on the part of Lord Rawlinson, which died hard. It was in evidence later when he was Commandant of the Staff College, it can be traced even to the obituary memoir in the "Times," in spite of all the solid success of his later career, and especially of his yeoman service as Commander of the Fourth Army in the Great War. Take all his services, and ask in each case—How many did, or would have done better?

At least the trudging infantry of Rawlinson's column in 1901 gave full justice to their keen commander. If he asked much of them, never did he fail to give them credit.

January 1904 saw me a student at the Staff College, Camberley; but a more important arrival was the new Commandant, Lord Rawlinson. If he thought himself lucky at 40 to succeed to that appointment, fresh from the lessons of the South African War, we certainly were so. The teachers he had under him included many who have since risen high in the service—Generals Sir Hubert Gough, Sir Richard Haking, Sir Laurence Kiggell, Sir Thomas Capper, Sir John Du Cane, Sir Walter Braithwaite, Sir Lionel Stopford. We students were plentifully bedecked with brevets, D. S. O.s and medals, we were keen and ambitious, and the South African War had taught us the responsibilities of Officers who aspire to lead men in war.

Such teachers and students were fit material for the keen, alert mind of the Commandant. If there was vain glory in our talk of the "Renaissance at the Staff College," there was truth too, and to Lord Rawlinson, and his successors, Field Marshals Sir Henry Wilson and Sir William Robertson, the country owes much for the soundness of a staff training which stood the stern test of the Great War.

It was during my time at the Staff College that I learnt the wonderful quickness at reading a country from the map, which was one of Lord Rawlinson's most striking military characteristics. We often hear of the soldier reading an unknown country from a

map, but how few in fact can do it, and in these days, when military topography plays such a small part in our military education, the art is rarer than ever. Certainly he had it, if ever man had.

He had wonderful horses, well known in the shires; one, a big grey, some 17 hands high, was reputed to belong to Lord Lonsdale, and to be intended for sale to the Kaiser. I remember well being bumped over a brook, when out with the Staff College Drag, by the Commandant on one of his big, galloping horses; a practical lesson in negotiating obstacles.

After some four years at the Staff College, Lord Rawlinson was succeeded by his old friend the late Field Marshal Sir Henry Wilson, and took over command of the Infantry Brigade at Blackdown, Aldershot. It was in the days when General Sir Horace Smith-Dorrien was G. O. C.-in-C there, and the troops were kept moving: the Blackdown Brigade was certainly not the least up to date in its training. I was at the War Office at the time, and there was talk of my going as his Brigade Major. What a chance it seemed! I went down to stay with them for a dance, and he kept me talking till within 10 minutes of dinner. Try as I would, I could not dress in time, and to my horror, when I came into the drawing room, I found it full of people, and Lady Rawlinson looking reproachfully at me, while there in the middle of the room was the General, a smiling host, looking as if he had gone to dress half an hour ago. It may have been quick decision, or a very good servant, or a bit of both, but certainly no man ever filled the unforgiving minute with more seconds worth of distance run.

To the command of the Blackdown Brigade succeeded promotion to Major-General, and command of the 3rd Division, on Salisbury Plain, and as I was serving on the Southern Command Staff at the same time (1911—1914) I found myself once more in constant touch with the 3rd Division commander. Sir Horace Smith-Dorrien too, had moved from Aldershot to Salisbury as G. O. C.-in-C, and at times he thought Lord Rawlinson's training methods slap dash. The G. O. C.-in-C. was quick tempered, both had strong views on training, both were strong willed: In my mind's eye I see one gloomy, drizzling dawn on Salisbury Plain, after all night operations; two stern, angry and unshaven generals; quick words, convinced but unconvincing; an instinctive edging away of the staff; while the weary troops trudged home across the downs in the gathering daylight. But those were soldiers both, leaders of men, and single minded in their

devotion to the practical war training of the troops under them. Some irritation there may have been at times, but mutual respect and liking always; and the Southern Command and the 3rd Division did not slumber with those two at their heads.

Then came the mobilization of August 1914, and Lord Rawlinson, who had relinquished the command of the 3rd Division to General Hubert Hamilton, was for a time Director of Recruiting at the War Office. There too I served for the first fortnight of the war, until I worked a passage to France, and when I came back in September to join the new 8th Division, Lord Rawlinson had gone to France to command the IVth Corps, which was to consist of the 7th and 8th Divisions, when the latter was ready to go to France.

The story of the early operations in Belgium, and of Lord Rawlinson's part in them, is to be found in the Official History; let us not forget that as a young Corps Commander, he had the courage and the self-confidence, to disobey the orders of the Commander-in-Chief himself, in the operations on the Meuse Road, when he thought the situation justified his action. That is easier to read about than to do; right or wrong, it is the action of a leader.

A pause in the operations of the 7th Division sent Lord Rawlinson, and some of his staff Home in October to have a look at the training of his 8th Division at Hursley near Winchester. The long faces and gloomy lectures of some of the Corps staff were little short of criminal, but the buoyant optimism and cheery confidence of the Corps Commander instilled itself into the officers of the division in spite of them. His appreciation of the seriousness of the situation in France was certainly no less sure than theirs, but there can be little doubt which was the better part to play with the leaders of troops who were shortly to share the dangers of the first seven divisions.

The IVth Corps, under Lord Rawlinson, together with the Indian Corps, played the chief part in the battle of Neuve Chapelle. Greater battles, and the lessons of the later years of the war, have obscured the importance of that action, but, at the time, it loomed large as the first occasion on which British troops had driven the Germans from well established trenches, in a trench to trench attack on a large scale. The 8th Division was holding the trenches opposite Neuve Chapelle from the middle of November 1914, until the capture of the village in March 1915; and early in January the Corps Commander began the serious study

of the problem of attacking the village. I still have at home, the schemes and appreciations of the 8th Divisional general and staff in various exercises dealing with the problems set by Lord Rawlinson during the winter, together with his remarks and criticisms.

There was indeed no failure in the preparation, or the performance of the "set piece" part of the battle; the staff arrangements were thoroughly thought out, and no troops ever fought more sternly for victory. The 8th Division, as it stood on the morning of the attack—long service regular soldiers from overseas garrisons, who had not taken part in the earlier battles of the war—was I think without question, the finest division in Europe. But when the set piece attack developed into a battle of opportunity, mistakes, misfortunes, and casualties were multiplied. The dearly bought experience of that four days fighting bore fruit in the sure leading of the Fourth Army in 1916, 1917 and 1918.

Among those higher commanders whose energy and keenness led them to see things for themselves in the trenches and observation posts, Lord Rawlinson was prominent. Such visits were not always welcome; front line troops thought that they brought hostile fire on them; but they certainly gave an insight into front line conditions, which was often lacking in the higher command and staffs, especially in 1915. It was a time of difficulties, hardships and repulses, and I cherish the memory of cheery visits from the Corps Commander, when an attack of influenza kept me in my bed.

In May 1915, the 8th Division drifted off to other Corps, and except at conferences, I did not see Lord Rawlinson again, until the Somme, in 1916, when he was commanding the Fourth Army, and I was sent as B. G. G. S. to the 15th Corps (about Fricourt and Mametz), in place of General Louis Vaughan, who was laid low by a sudden attack of appendicitis. The Somme attacks were in full swing, and the Fourth Army was bearing the brunt of them.

Was its commander careless of casualties? Was he even ruthless in exchanging senior commanders for younger and more active men? Both charges have been made; both, I think, can be squarely met. Somme casualties were terribly heavy—the loss of young life was shocking,—but were the generals alone to blame? The troops employed were, in the main, the young divisions of the New Army opposed to the best troops of a Germany which

had been a nation in arms for a century, entrenched in positions which had been fortified for 8 months, supported by a formidable artillery, and contemptuous of Britain's newly raised levies. No finer fighting material than our New Army divisions have ever taken the field, but their tactical leading, and command had to be learnt in a stern school; and, if the lesson was a costly one, some of the blame at the very least must be borne by those who committed the nation to war in Europe without previous military training, rather than by the generals who led the young troops through the hard and bitter schooling of experience in the field. Higher commanders who fear casualties in battle are not those who lead to victory: Colenso was lost with 11 battalions in reserve. And if great generals do not wear their hearts on their sleeve, who shall say that they are careless of casualties, or unaffected by the losses, which are the price of final victory?

And ruthless? The very danger of loss of moral, and heavy casualties, to fighting troops under the orders of an incompetent or even moderate commander, urges to rapid decision by a higher commander as to the retention or rejection of subordinate leaders. Opportunities of close personal judgment by high authorities of the commanders of troops who come and go frequently in the higher organisations, are often scanty. Results are but one method of judging: an impressionist appraisal of general fighting characteristics, and the reports of staff officers have often to be relied on, especially during continuous operations. And if supercessions in the field appear ruthless, when calmly reviewed in the peace of home, we must remember that many a man found wanting in the heat and responsibility and nervous strain of modern action may appear capable, solid, and reliable when the strain is removed, in the calm atmosphere of home service. I have known generals far more ruthless, and less discerning than Lord Rawlinson; I have known many less ruthless, and less discerning. Lack of moral courage and faulty discernment of character in the judgment of subordinates, have been more common traits in British generals, than the ruthlessness which discerns weakness, and knows that it has no place in modern war. That mistakes and injustice must occur in the rapid supercessions and promotions of war may be granted, but the instances are not so numerous as the stories of partisans and relations would have us believe.

Mud, and the early winter of 1916-1917 deprived the Somme fighting of the great strategic results which were so near, but the great part played by the Fourth Army and its commander, in the

battles of 1916, marked a definite advance towards the victory of 1918.

Early in 1917, promotion took me from the Fourth Army to the First, and for the rest of the war I served no longer under Lord Rawlinson's direct orders. But I saw him at numerous C.-in-Cs. conferences, and his clear statements of the operations and plans of his Army, his confident bearing, and the ease with which he extracted guns, troops, tanks and services from other armies for his own use, all marked him as a leader who had the confidence of the Commander-in-Chief, and was entrusted with a major part in the operations of the five British armies.

Two of these conferences stand out in my memory. The first was the Doullens conference of the 26th March 1918, when the great German advance was in full swing, and where Marshal Foch was entrusted with the task of co-operating the allied operations in France. Lord Milner and Sir Henry Wilson had come over from England; Clemenceau, Louchur and Foch represented France; Lord Haig was there as C.-in-C. of the British Forces, with Lord Plumer, Lord Horne and Lord Byng, the commanders of the three Northern British armies. Major-General Sir Archibald Montgomery was there as the representative of Lord Rawlinson who was then British member of the Inter-Allied Committee of Generals at Versailles.*

It was not a cheerful gathering, and while the deliberations were in progress there were alarms and rumours of attack by German armoured cars down the Hebuterne road leading to Doullens. What a bag they would have made! It was a false alarm, but a collection of scallywags, who had lost their units, were assembled to block the road which led to the Conference Hall.

Very soon after this Lord Rawlinson again exchanged his position at Versailles, for the command of the Fourth Army; and it was as the victorious commander of that army, which had borne the main weight of the battles of August to November, that I saw him again at the final Commander-in-Chiefs conference, which assembled at Cambrai at 11 o'clock on the day after the armistice when the guns had fallen silent in France after nearly four and a half years. It was a different gathering from the conclave of the previous March. Arrangements were

*The fighting of 1917 had shortened the British front and the Fourth Army had been squeezed out of the line. For a time Lord Rawlinson and his Army Headquarters were in the North, where he was designated to command operations; then he took Lord Plumer's place when the latter moved to Italy; and on Lord Plumer's return to Flanders, he had gone to Versailles in succession to Sir Henry Wilson.

sketched out by the Commander-in-Chief for the march into Germany; there were a few short, soldierly words of thanks to the commanders whose great task had at last been accomplished, and a photograph, in which the Commander-in-Chief stood in the centre, flanked by Lord Plumer and Lord Rawlinson, his two senior Army Commanders. It was a proud hour, when for a time achievement blotted out the thought of the weary struggle and the sacrifices it had cost.

As Lord Horne and I drove back to First Army Headquarters we discussed—not the achievement, not the sacrifices, not the end of the four long years of war, but the fact that Lord Rawlinson and his senior staff officer, Sir Archibald Montgomery, wore khaki hunting stocks in place of the uniform collar and tie! Truly a strange world.

The war over, no one could be more suited than Lord Rawlinson for the Aldershot command; where the lessons of the war would be first digested and put into practice, by the young army of the future. But the Rhine, and Ireland, the Near East and Russia drained England of troops; war weariness and the need for reconstituting units, and straightening out the foreign service roster and the drafts for India, postponed training; industrial unrest necessitated the employment of troops in that most thankless of tasks “aid of civil power” and Aldershot remained half empty, with little enough for a G. O. C.-in-C. to do. His time was occupied by the Presidency of Committees which sat at the War Office; the reorganisation of the officer cadre of the Royal Engineers, and other matters.

In the autumn of 1920 the Russian tangle round Archangel, and in Murmansk, and the determination of the Government to withdraw our troops from Northern Russia, led to Lord Rawlinson being sent out to carry out the evacuation. This done, he returned to his command at Aldershot.

More than once he visited us at the Staff College. He had lent to Camberley a large number of trophies from his various campaigns, and these were hung in the big lecture room, now known as the Rawlinson hall. To my horror, just before his first visit after they had been put up, I saw a “Vierklur” Transvaal Republic flag, captured in the Boer War, hanging just over the head of a South African officer student, who as a lad had carried his father’s Mauser on commando, when fighting against us. An introduction to the General, and a few kindly words put that right, but the flag was taken down.

Of Lord Rawlinson's time as Commander-in-Chief in India, from November 1921 until its tragic end, it is not for me to speak. There are those who have hinted that in his reorganisation and reconstitution of the Army in India, he took rather the line of the member of Government than of the Commander-in-Chief. But I think that it will be widely acknowledged that he steered a statesmanlike course between the Scylla of the excessive reductions which ever threaten the fighting services at the end of a victorious war—(and more so than ever in modern India),—and the Charybdis of military reaction against retrenchment dictated by political and economic necessity. Those who study history will hardly doubt that, by his broad outlook and his capacity for smooth working with political and civil colleagues and superiors, he saved more for the Army than would have been accomplished by the uncompromising attitude of one who could see only the purely military outlook.

His extraordinary energy, and powers of work were patent to all; one item which was probably not so generally known, was his enormous private correspondence with men who had served with him, and under him. Scarcely a mail passed, for several old comrades, up to the very week of his death, without long type-written letters from the Commander-in-Chief, dealing with current military and kindred topics all over the world. And these letters were individual to the recipient, no mere copies, differentiated only by an address. When serving in Constantinople in 1922, I often saw his letters to General Sir Charles Harrington, and received them myself; and I marvelled at the clear and intimate grasp of our local military difficulties which they displayed, at a time when the Commander-in-Chief might have been thought to be fully employed with the Inchcape Committee; Waziristan; the Legislative Assembly, and all the manifold duties of his office.

Many of us hoped that his great services as Commander-in-Chief would have been followed by his succession to the appointment of Chief of the Imperial General Staff. He had, indeed, actually been selected for the appointment. His rank, position, and reputation in the Army, his matured judgment, and great experience in peace and war, in command, on the staff, and as C.-in-C. in India—all seemed to point to him as the man best fitted for that great appointment at a time when changes in the composition, organisation and relations of the fighting services of the Empire are obviously pending.

But alas, it was not to be, and in these lines I have endeavoured to give some nearer appreciation of that great military

career which ended so suddenly. It is hard to connect with death that tireless energy in work and sport ; that brisk, cheery manner ; those quick searching questions ; that attention to the views of subordinates, not unmixed with impatience of a slower moving or less direct mind ; the whole alert soldierly personality, which went to make up the Chief whom we feared and respected, the Lord Rawly whom we loved.—God rest him.

CHEMICAL WARFARE.

By "*Al Khazir*."

A book has recently appeared which is worthy of study both by soldier and civilian. I refer to "*Callinous: a Defence of Chemical Warfare*," by Mr. J. B. S. Haldane. The book is small, but its matter weighty. Mr. Haldane is peculiarly well qualified for his task. By trade a physiological chemist—he is Sir William Dunn, Lecturer in Biochemistry at Cambridge University—Mr. Haldane was a bombing officer in the late war, with personal experience of the effects both of severe shell wounds and of gas asphyxiation.

Briefly, Mr. Haldane's thesis is this. The primary object of every weapon of war is to incapacitate the enemy for the duration of the operation. For this purpose to cause death is unnecessary. Gas can incapacitate wholesale; while, given adequate anti-gas protection, the vast majority of the casualties which it causes make a complete recovery. Gas is, therefore, the most humane of all weapons, and its use on the largest scale would shorten war and minimize destruction of life and property. But owing to ignorance—the aftermath of a war-time propaganda based on the effects of the earlier, lethal, gases upon unprotected troops—gas warfare is now banned by sundry international agreements. Mr. Haldane contends that the first opportunity should be taken to denounce these agreements; and that, to such a course, education of public opinion is a necessary preliminary. In these views Mr. Haldane finds striking support in the writings of Lieutenant-Colonel Ed. B. Vedder, U. S. Army Medical Service, whose recent book, "*The Medical Aspects of Chemical Warfare*," deals exhaustively with the physical, chemical, pathological and clinical aspects of the subject.

On the technicalities of chemical warfare Mr. Haldane speaks as one having authority: he is, of course, an expert. In another respect, however, Mr. Haldane is disappointing: towards the professional soldier he adopts the stereotyped attitude of the "Intellectual." Having survived the tirades of Wells, of Galsworthy, and of Gibbs, and a score more of like kidney—the soldier is now perhaps a little bored with this attitude: it has lost its pristine

freshness. For, in sober truth, the soldier is not always knave or fool. There are varying degrees of excellence among professional soldiers as among professional novelists—or chemists. The soldier is nothing more or less than a man like unto themselves; a man who follows his highly specialized profession with normal zeal and normal intelligence. In a book destined to become a classic, the American, Homer Lea, has written “Modern warfare is the conversion of the nation’s potential military resources into actual power and its consequent utilization in a unified and predetermined manner *by men more scientifically trained than lawyers, doctors, or engineers.*” The italics are mine.

Mr. Haldane, it is true, goes one better than most: he is lavish in his scorn for almost all mankind—other than the biochemists. But his keenest shafts he reserves for the soldier. Mr. Haldane, as already remarked, is an ardent advocate of chemical warfare. And he assumes—on no apparent grounds—that the professional soldier is constitutionally opposed to the retention of gas as a recognised weapon of war; and that he is, therefore, responsible for the present position in regard to chemical warfare. On this, perhaps baseless, assumption Mr. Haldane summarily convicts the soldier of three separate charges: crass ignorance; hideously false sentimentalism—or “Bayardism” as he calls it; and a cynical indifference to the public weal, which urges that, since home defence measures against possible gas attack would not increase the soldier’s personal importance, such measures are best neglected. Now there is no doubt that, in regard to chemical warfare, our present position is equivocal. It does not follow, however, that the professional soldier is wholly to blame: a fact which may emerge from the following brief review of the vicissitudes of gas as a weapon of war.

We shall take up the tale at the first Hague Convention of 1899, wherein the use of gas was first made subject to international regulation. Gas was already on the horizon; for, by an article of this Convention, the signatory Powers bound themselves to abstain from the use of projectiles the sole object of which was the diffusion of asphyxiating or deleterious gases. By the second Hague Convention of 1907 this decision was reaffirmed; moreover, by further articles of this latter Convention, the employment of poison or poisoned weapons and the discharge of projectiles or explosives from balloons were both forbidden. So much for the attitude and obligations of the signatory Powers at the outbreak of war.

In the war, however,—as all the world knows—the Germans initiated the use of gas at the 2nd Battle of Ypres in April 1915. The gas employed was chlorine, a non-persistent, lethal, gas. And it was discharged from cylinders in the form of a cloud. Among troops totally unprotected the casualties were heavy, and probably more than 1 in 4 of those affected died. Fortunately the Germans had not foreseen the extent of their success, and they failed to profit by it. Also, the emission of a gas-cloud from cylinders is a method of employment open to serious objections. Firstly, the cylinders are heavy and, even in static warfare with highly developed rail and tramways, the labour of man-handling these to the front trenches is very great. Secondly, the digging-in of the apparatus is a complicated process liable to attract the attention of the enemy, whose obvious retort is to destroy the cylinders by shell-fire before the preparations are complete. Finally, the success of the operation is entirely dependent on a favourable and constant wind. According to Hoffmann in his “War of Lost Opportunities,” Geheimrat Haber, the inventor of German gas—claims to have foreseen all these difficulties from the first, and to have urged the use of gas shells for the initial surprise attacks. Fortunately again, German General Headquarters were not then convinced of the efficacy of gas, so Haber was refused the necessary facilities for the manufacture of gas shells. We were, therefore, given breathing-space to perfect our anti-gas measures. Later, of course, gas shells were increasingly used by both sides—in the end practically to the exclusion of all other methods of gas warfare.

I do not propose to follow in detail the evolution of chemical warfare from 1915 until the Armistice. In all 25 different poisonous substances are said to have been used, of which three only are gases at ordinary temperatures and thus suitable for cylinder emission. The 25 substances can be divided into four groups. The first group—lethal, non-persistent, gases, of which the best known are chlorine and phosgene—are effective only when present in concentrations poisonous to the lungs, and can all be kept out by respirators. In fact, according to Mr. Haldane, these gases—the first to be used in the war—are now “almost as obsolete as muzzle-loading cannon.” The second group comprises the “lachrymatory” gases—non-lethal substances which cause temporary but complete tear-blindness even when present only in the most minute quantities. They, too, can be kept out by respirators. The third group—the “sternutatory” gases of which the German Blue Cross and the American Lewisite

were examples—are not gases but poisonous smokes, mostly arsenic compounds. These, in low concentrations, cause sneezing but, in higher concentrations, they produce successive degrees of acute headache and mental anguish, often resulting in suicide or madness. Survivors, however, usually recover rapidly and completely. This group, which would have been fully developed by us had the war lasted another year, is peculiarly important in that, while it is comparatively easy to produce a respirator which will keep out gas molecules, it is almost impossible to produce one which will be wholly impervious to smoke particles. Of the fourth group—persistent, blistering, gases,—dichlorethyl sulphide, or mustard gas, is the only example used in the war. It was Haber again who, about June 1917, produced the German Yellow Cross. The Yellow Cross is in reality a volatile liquid, the vapour of which is not only poisonous to the lungs but will also penetrate clothing and cause severe and obstinate blistering. Moreover, evaporation is so slow that contaminated areas may remain unsafe for a week. And, since troops feel no immediate inconvenience, they do not at once realize that they are being gassed. When he made his report to Ludendorff, Haber recommended that Yellow Cross should be used only if it were certain that the war would end within a year. He could guarantee that, for a year, France and England would be unable to imitate and produce Yellow Cross. If, however, the war were to last longer, then the superior manufacturing resources of the Allies would eventually prove decisive. Ludendorff accepted the risk; Yellow Cross caused 150,000 casualties in the British Army alone—and would have caused many more, had not the Germans adopted a needlessly complicated manufacturing process which restricted output; *our* first supplies of mustard gas did not reach France till September 1918—four months after Haber's time limit had expired. But, by the Armistice, France alone had 5,000 tons of mustard gas ready for use: the tide had turned.

So much for the four groups of poisonous substances used in the war. Of these groups, the first two are innocuous to adequately protected troops and the third largely so; while the fourth—mustard gas—kills only 1 in 40 of those it incapacitates, as against 1 death in 3 among shell casualties. It is difficult, therefore, to justify the verdict that chemical warfare is peculiarly inhumane.

After the war the disarmament of Germany was one of the main concerns of the Versailles Peace Conference. Hence we find that, by Article 171 of the Treaty of Versailles, Germany is forbidden

to manufacture or import asphyxiating or poisonous gases, or materials intended for their production. And similar clauses appear in the treaties which were imposed upon Bulgaria, Austria and Hungary. But these prohibitions are in the nature of pious hopes. Obviously we can never prevent secret laboratory research. Nor, equally obviously, can we prevent the manufacture for commercial purposes of the constituents required for chemical warfare; though—for the present at least—we can and do restrict production of the concomitant guns and shells in the late enemy countries.

This, then, was the position at the opening of the Washington Conference early in 1922. The Articles of the Hague Conventions relevant to chemical warfare had never been denounced, and further prohibitions had been imposed on the late enemy countries. At the Washington Conference Mr. Elihu Root proposed, on behalf of the United States, that the conferring Powers should reciprocally bind themselves to abstain from the use in war of gases and analogous liquids and materials. The object of this proposal was admirable. Thinking soldiers, however, are well aware that the regulation and limitations of methods of warfare are best left unattempted. To cite an analogy from the card-table: in certain less conventional "poker" circles it is etiquette to enquire at the beginning of a game "Do we play fair or all we know?" And the wise man plumps for "all we know" else the wicked may flourish unduly. So it is with war. We cannot prevent secret preparations for chemical warfare: we know, for instance, that—in spite of Article 171 of the Treaty of Versailles—Germany has vast commercial resources in phosgene and that the thiodiglycol of her commercial dyes can be converted into mustard gas by one process. We have before us the example of Germany's past disregard for the Geneva Convention. We know, moreover, that limitation of armaments—that favourite theme of politicians—will serve merely as an added inducement to the use of chemicals. And we have no guarantee that future enemies will be more scrupulous than was Germany. Hence the soldier would prefer to face the issue fairly and squarely, lest by obscuring it with ineffectual prohibitions—we may be placed at the mercy of the unscrupulous. But the soldier does not, and should not, shape National Policy. Mr. Root's proposal was, inevitably, accepted; to be embodied in the "Treaty for the Protection of the Lives of Non-combatants and Neutrals at Sea, and to prevent the Use in War of noxious Gases and Chemicals." It is worthy of note, however, that Lord Balfour, when welcoming the proposal, warned

the Conference that "a mere affirmation of the Law, without any sanctions to it, would not relieve the nations of the world from taking precautions against those who were prepared to break the law."

The results of these attempts to prevent a recurrence of chemical warfare have been precisely those foreseen by the soldier. In view of Versailles and of Washington, the treatment of offensive gas warfare in our training manuals, and its study at our schools, have appeared unjustifiable; while anti-gas—training the gas-chambers and technical staff for which cost money—has provided the Treasury with an obvious field for retrenchment. Meanwhile, however, in other countries chemical warfare is by no means a dead-letter. The United States after the war voted a huge sum to be devoted to an exhaustive programme of chemical research; France has been active; Germany's commercial potentialities have already been noted; and, finally Russia—bound by no treaties—is known to be devoting feverish attention to poison gas. Therefore, as I have already remarked, our present position is equivocal. But, *pace* Mr. Haldane, this is hardly the fault of the soldier.

Our primary requirement is, clearly, a definition of policy. And here we might well follow the example of France. At the beginning of the French Field Service Regulations ("Instructions provisoires sur l'Emploi tactique des grandes Unités") there appears the following formula:—

"Respecting the international engagements to which France is subscribed, the French Government will endeavour at the beginning of a war, and in agreement with its allies, to obtain from the enemy Government an agreement not to use offensive gas as a weapon of war. If this engagement is not obtained, the French Government will reserve its liberty to act according to circumstances."

Thus, the attitude of France in regard to chemical warfare is perfectly clearly defined, and training—both defensive and offensive—logically follows. Obviously we should follow suit. Unless we are to run very grave risks, every man in the fighting services must receive continuous anti-gas training sufficient to ensure that he can work efficiently in his respirator under all conditions. And adequate mobilization reserves of up-to-date respirators must be maintained. Indeed, it is for consideration whether this training should not be extended to the civil population of such areas as may be specially liable to gas-attack. France, we know, has immediately available an Independent Air

Force of 600 machines. As our answer to this Independent Air Force we hope by the end of this year to have 312 Home Defence machines; but, till 1929, we shall not approach equality. Fortunately, therefore, war with France need not be reckoned a present possibility—else the people of southern England might find it difficult to sleep securely in their beds. But now imagine the situation of 1914 to be repeated to-morrow—repeated with this modification; Germany and Russia are now allied; and the offensive, no longer a turning movement through Belgium and North France, is aimed directly for the coast. Within a few days of the outbreak of war enemy aerodromes are established within an hour's flight of London: that is, London has become a second Ypres—in the forefront of the battle. Further, railway junctions, docks, factories, would then offer ideal objectives for bombing or spraying with persistent gas. Given a populace entirely uneducated in chemical warfare, the possible results of gas attack in such a situation are obvious. Still, offence would—as ever—be the best defence; and the mere knowledge that we were in a position to retaliate might well act as a deterrent. But here we must remember Haber's mustard gas and the 16 months it took us to imitate it: to be effective our counter-offensive preparations must be made in peace. That is; research must never be relaxed, and, we must hold at all times emergency stocks of the approved substance and, with it, the appliances requisite for its use.

Nor can India afford further to ignore chemical warfare. Russia, as we have seen, is devoting great attention to poison gas; and she is likewise endeavouring to develop a large air force. Russia is bound by no treaties. Russian-made roads and Russian railheads are ever thrusting forward towards our frontier. The day is not far distant when gas-attacks upon our troops on or near that frontier will enter the realms of possibility—and the risks of unpreparedness are too grave to be contemplated. Moreover, quite apart from any immediate threat to India's frontiers, forces may be again despatched overseas from India in emergency; while in the normal course British units leave India on relief and British reservists pass to the reserve from India. None of these can we regard as immediately fit for service unless their anti-gas training has been carried out in India. Anti-gas training has become essential for British and Indian Armies alike.

There is, too, the aspect of gas in aid of the Civil Power—an aspect emphasised by the American writer Colonel Vedder above-referred to. Manifestly, as a means of controlling mobs and

rioters, tear-gas, the effects of which are purely temporary, would be infinitely more humane than bullets, to the use of which, if wholesale destruction of life and property is to be averted—there is in extreme cases unfortunately no present alternative.

This, then, is the position, to which none is more keenly alive than the soldier.

THE CONCEALMENT OF FORWARD COMMUNICATIONS FROM THE AIR IN MOVING WARFARE.

By Captain and Brevet-Major B. C. Denning, M.C., R.E.

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The construction of forward communications was, at all times during the war, one of the chief tasks of Field Companies. Whether we care to look back at the mobile operations of 1914, or the long period of siege warfare which followed, or the months of slow movement in 1918, whenever an advance was in contemplation, it is almost true to say that forward communications were the only concern of Divisional R.E.

As regards the *concealment* of forward communications from the air, by the end of the war, both the necessity for concealment, and the methods for obtaining it were pretty generally understood. It is true that immediately prior to Ludendorff's offensive on the Lys in 1918, bridges were prematurely thrown, and gave away the attack, and it is probable that the Allies made similar mistakes at different times. But, on the whole, after 1917, engineers can claim that, where surprises were not effected, the fault did not lie in their failure to conceal their communications.

Looking at the problem to-day, it is well to remember that the majority of the advances of the Great War were made after long periods of preparation. Thus, there was considerably more time and material available than is likely to be the case in the earlier stages of the next war with which to ensure concealment of forward communications.

The manœuvres carried out this year by the 1st Division in the Farnham-Odiham area gave an interesting example of the type of demand likely to be made on Field Companies in the way of forward communications. The manœuvres were planned to test, amongst other matters, the question of concealment from the air. The following is a brief description of the first day's operations, as far as concerns the subject under discussion.

"The manœuvres were carried out in typical English country, with some woods, large fields bounded by thick hedges, some deep

over-grown lanes and open main roads. The Air Force opposed to 1st Division was given reasonable air superiority and forced by air umpires to work under conditions approximating to those of war. During the first day's operations, the 1st Division (Blue), deployed two Infantry Brigades against a weaker (Red) Force. The weather was fine with visibility excellent. The Red Commander instructed his Air Force to locate the Reserve Infantry Brigade of the 1st Division and to determine upon which portion of the battlefield it was to be thrown in. During the early part of the day, the Reserve Brigade was concealed in woods on the right rear of the Divisional front. In the afternoon, the situation was such that it had to be moved up to relieve the left Brigade in line.

It thus had to move up and across the front. It left the cover of the wood, taking special measures to avoid being seen from the air. Battalions moved out one at a time, in single file, along the side of roads, without transport. This method of advance led to a very considerable extension of the brigade, and was very slow, the brigade taking close on three hours to pass a point. The advance might have been made more rapidly but for a river over which the crossing places were extremely limited. It is of interest to note that the move of this brigade was not detected by the enemy airmen, though the area was under continual observation."

Now it is clear that in war, the situation will rarely be such that we can allow an Infantry Brigade three hours to pass a point. During manœuvres, many fields are out of bounds, property has to be respected, hedges and fences cannot be cut and troops are forced to use only the existing roads and tracks. In war, steps would be taken to ensure that the reserve troops were sent up rapidly into line and yet remained undetected. Taking the situation of the 1st Division on the night preceding the operations just described, where such an advance is contemplated for the next day, it is certain that the C. R. E. would arrange for the marking and preparation of numerous tracks to the front, bridging, cutting, filling-in, etc., where necessary. With little chance of daylight reconnaissance, during the hours of one night, Field Company officers would be required to choose the line the new tracks were to take and carry out all necessary work. At dawn they would be required to follow up the advance and carry forward the tracks at the pace of the advance so that, at any time, reserves could be sent up without delay, concealed from air observation. It is in connection with this type of task that one wonders

whether R.E. officers possess all obtainable knowledge regarding the concealment of communications from the air.

There is little doubt that the concealment of moving troops is becoming an art with which all officers—certainly R.E. officers—should be familiar. There are many factors affecting this question of concealment.

The first, and most obvious method of obtaining concealment from the air, is by the use of darkness. This method has its limitations. Darkness invariably slows up movement and can lead to confusion and loss of direction. Constant night work wears out troops and may result in loss of efficiency. At certain times of the year, in many latitudes, the hours of darkness are very short. Furthermore, airmen claim to-day, that, with the latest patterns of flares, great tracts of country can be lit up for considerable periods, showing up objects on the ground quite clearly. While darkness will always be regarded as the principal method of obtaining concealment, and will be made use of whenever possible, occasions will constantly arise (as with 1st Division manœuvres), when it is necessary to move troops in forward areas, by day.

In contemplating movement by day, the most important factor is the nature of the country. If we are operating on a prairie or a desert, it is probably almost useless to hope for concealed movement of troops by day. If we are fighting in close English country, as the 1924 manœuvres have shown, it is possible to move a brigade of Infantry without detection. The nature of cover to be found in the theatre of war will govern very largely whether there is to be day movement or night movement of the army. Next in importance to the nature of the country is the seasonal factor. In most possible theatres of war there are seasons in which, according as the vegetation is in leaf or not, the question of concealment from the air becomes easy or difficult. The factor of season should always be considered before making plans for concealment. Hand in hand with the consideration of seasons goes that of weather. It is true that there are now few days in the year in Europe on which aeroplanes cannot fly, yet there are a great many days in the year in which aeroplanes can see little. Prior to the great German offensive in March, 1918, there was a long period of dull weather which assisted materially in hiding the German movements. Aeroplanes flying low under clouds, are not only more exposed to fire, but have a more limited and fleeting view of objects on the ground. Statistics, week by week, of

weather in the theatre of war, will become a necessary addition to the original intelligence with which the Army embarks on a campaign.

The art of concealing moving troops is in its absolute infancy. There are a hundred and one facts yet to be determined. Let us examine some of the questions we should like to have answered in connection with the factors already mentioned. For instance, in movement by night, how do troops best remain concealed if lit up by aeroplane flares? Is it best to lie down or to remain standing still, or can they keep moving? On what surfaces should tracks be sited in order to show up troops least under flares? What coverings to hats, transport, etc., show up least under flares? Possibly those different in colour to those least visible in sunlight. In movement by day, are troops less visible at dawn and dusk and if so, why, and for how long a period after sunrise and before sunset? In operations on Salisbury Plain this year the writer noticed that after a night of heavy dew, at sunrise, the tracks of even individual men were distinctly visible *in grass* to an airman at 2,000 to 3,000 ft. Is this the case on all surfaces and, if not, what surfaces should be selected for tracks? Are troops equally visible by day on all surfaces? No! the difference in appearance of objects on tarmac and macadam surfaces, for instance, is remarkable. Which then are the preferable surfaces for day tracks? To what extent can shadow be utilized to hide movement? Troops under the dark shadow of woods and buildings are absolutely invisible from the air. Does this apply to a lesser extent to the lighter shadows cast by hills in the early morning and late evening? Where cross-country tracks cross water they are particularly liable to detection. Have we considered special arrangements such as the throwing of the bridges at the time of use only, or the selection of bridging sites likely to be (at any rate on one bank), in shadow at the contemplated time of crossing? Have we considered the effect of speed upon concealment? Are slow moving infantry more or less visible than fast moving cavalry and tanks? Is the mechanical army of the future going to be easier to conceal on the move than the slower one of to-day? Is dust very visible from the air? If so, what are the best surfaces to counteract this? If the enemy knows where to look for your moving columns, his task is easier—but how much easier? Is this point vital or not? What is the effect of his height on the enemy airman's ability to see troops? Does it make a decisive difference keeping him at 20,000, 10,000 or even 5,000 ft. up?

What real difference do weather, clouds and the leaf on the trees make to the power of observation of the airman? Such, then, are some of the questions to which every officer in the Army should know the answer, just as he knows the range of a rifle or a field-gun.

How are we to set about determining the answer to these questions?

Were there an Army School of Intelligence these matters would, no doubt, be tackled systematically and the lessons proclaimed to all. As it is, there are two schools where the problems under discussion can be studied by R.E. officers, though it is not the duty of those Schools to specialize on this subject. These are the R.A.F. School of Army Co-operation at Old Sarum, and the R.A.F. School for Interpretation of Aeroplane Photography at Farnborough. Now that Army Orders provide that every officer shall fly, if there is need for him to do so, it is to be hoped that as many R.E. officers as possible will be sent to these schools to fly and to answer the questions that affect their work.

In war, Commanders of Formations will certainly rely on their Field Companies to find *concealed* forward communications for the movement of reserves. A reserve thrown into battle is absolutely wasted if its arrival has been previously detected. On Field Company officers will rest, therefore, a big responsibility. Are we equipped to take this on?

THE ARMY CO-OPERATION SQUADRON.

By Flight Lieut. R. L. Stevenson, R.A.F.

The object of this article is to explain in some detail, for the benefit of those who have not been intimately connected with the Royal Air Force, the Army Co-operation Squadron.

The broad principles of army co-operation are laid down in the various training manuals, but there is no manual treating the subject as a whole, and certain of the methods of execution are fast becoming obsolete. It is proposed to deal with the subject in all its phases from an air point of view, and at the same time to depict the condition under which the air observer works.

THE SQUADRON.

Army Co-operation squadrons will most probably be allotted on a corps basis, and usually on the scale of one per division. The allotment of squadrons to a force must depend on so many variable factors, such as the nature of the operations, and the amount of aerial opposition, that it is not possible even to generalise.

The squadrons are organised in Wings, and the Wing Commander administers all squadrons in the Army Co-operation Wing, and also acts as air adviser to the Corps Commander.

When a squadron is allotted to a division, it will receive its orders direct from the divisional commander. It is very advisable that formation headquarters be as near as possible to the aerodrome or advanced landing ground.

The squadron is a complete fighting unit; it is mobile on its own transport, and its duties may be varied very considerably according to the requirements of the operation being carried out by the formation to which it is attached.

The war establishment of a squadron is three flights of six machines each. In the case of a minor war, where there is little or no opposition in the air, the peace establishment of four machines to each Flight may be retained.

Each Flight can keep one machine in the air during the hours of daylight, but it is possible under stress of circumstances, for pilots to do more flying than this, daily. Their efficiency

however, will suffer if flying periods are too frequent. Flights may be detached from the squadron for a short time, but here again, because the various technical sections are organised on a squadron basis, the efficiency both of the squadron and the flight must suffer if they are separated for a considerable time.

The pilot is the man who normally does the observing. In face of aerial opposition, it became a wartime expedient for the person occupying the rear cockpit to look out for hostile aircraft, because he had the better view of the sky, and a gun which he could get into action more quickly in any direction. It may be argued that the pilot's observing ability is impaired by his having to fly the machine; this however, is not normally the case, because flying at a height is almost sub-conscious, being done mostly by a well developed air sense. The great advantage of the pilot making observations is that, although much of the ground is hidden by the wings of his machine, he can keep any particular place in view at a given time. This is particularly needful when observing for artillery fire. There are occasions when it is necessary to have a trained observer rather than an aerial gunner in the back seat. Such occasions arise when the machine must fly at a very low altitude to gain information, or when the shell bumps of a heavy barrage demand the whole attention of the pilot to keep his machine under control. For these reasons there are, in each flight, two extra flying officers who may be used for observing duties.

VULNERABILITY OF MACHINE TO HOSTILE ANTI-AIRCRAFT DEFENCES.

The Army Co-operation aeroplane spends most of its time in the air flying much lower than other machines. Above 3,000 feet it is subject to anti-aircraft gunfire, but below this height it is such a fast moving target that it is difficult for the anti-aircraft gunner to keep his sights trained on the machine.

When flying below 3,000 feet, however, the machine becomes subject to machine gun fire from the ground, and the general opinion amongst pilots is that this is more disconcerting than anti-aircraft gunfire. It was found during the war that, whereas pilots became accustomed to the continual anti-aircraft shelling, they were never at ease when being fired at by machine guns on the ground.

The army co-operation machine is no defence against low flying enemy aircraft. Its first duty is reconnaissance, and it may not fight unless forced to do so. Furthermore, fighting below

3,000 feet soon becomes impossible because there is not sufficient height in which to carry out fighting manœuvres and, if the machine should get out of control, there may not be sufficient height for the pilot to regain it.

It is for these reasons that Field Service Regulations state that a commander is at all times responsible for making his dispositions for defence against enemy aircraft flying below 3,000 feet. Emphasis must be laid on the necessity of shooting at such aircraft, and keeping on shooting, although no results are observed. One bullet hole through a main spar will cause the plane to be condemned, and thus render the machine unserviceable for a flying day, while two or three bullet holes in well selected places, such as longerons, will cause the machine to be a "write-off" and in all probability it will not fly again in the war area. Many thousands of rounds must have been fired during the last war doing damage of this kind, and yet the machine gunner who fired them could not have known of the results of his fire. In many cases the pilot did not know that his machine had been riddled until it literally fell to pieces when landing on the aerodrome.

Aircraft will often fly low in the hope of drawing fire from positions where troops may be concealed. When it is thought that the position has not been discovered, fire from the ground should, for obvious reasons, be withheld.

CLOSE RECONNAISSANCE.

This duty combines those which were carried out by the "contact patrol" and "counter-attack patrol" machines during the last war, except that, whereas the "counter-attack patrol" machine could call for artillery fire on suitable targets, the close reconnaissance machine has no direct dealings with the artillery.

Radio Telephony is authorised for the close reconnaissance machine, and will provide a two-way means of communication between the observer and his commander. All squadrons are not, as yet, equipped with this, but as soon as sets are available, it will become general.

The close reconnaissance machine carries very distinctive markings, one or other of which should be clearly visible at the height at which the machine works. There are black flaps one foot wide hung from the trailing edges of the main planes, and these are extended in black bars along the under surface of the

main planes to the leading edge, eight feet from the fuselage on either side. There is also a coloured streamer flying from the tail.

The first duty is to reconnoitre the enemy's position and to give information regarding his strength and disposition. The natural tendency of the observer is to report the first enemy troops he sees, and often much valuable time is wasted in reporting the enemy's advanced troops, which may not amount to more than a screen.

The observer should try to ascertain the position, strength and direction of movement of the enemy main body as soon as possible; then that of the reserves, followed by information concerning field guns, tanks, and the dispositions of advance troops.

In open warfare these dispositions will be continually changing, and by the use of Radio Telephony it is hoped that the observer will be able to keep his commander informed of the changes in time for the information to be of use to him.

Imagine for a moment the observer's difficulties, with the primitive message-bag as a means of communication, in a very modern and moving battle, centred around the crossings "A," "B" and "C" over the River Avon, (which will be vividly remembered by all officers who have fought weary battles on Salisbury Plain), cavalry and armoured cars on one side fighting against tanks and infantry in lorries on the other. These forces probably move towards each other at a resultant speed of twelve miles per hour. The air observer comes back from the enemy's line full of information, spends valuable flying time searching up and down six miles of country for his dropping station, finds it, flies back to the enemy line, and finds that everything has changed. He then has to go through the same laborious process again, and during the time that he cannot watch the enemy he has a feeling of uneasiness that important things are happening which he should see, and unfortunately this is too often the case. It is the going away which makes it so difficult to pick up the threads of the situation upon returning.

In position warfare, where the dispositions of the enemy may be generally known from day to day, the close reconnaissance observer will be occupied in reporting movement, reinforcement, condition of trenches and wire, new works, roads and tracks in use, and trench mortar and machine gun nests.

When ordered to do so the observer will indicate the positions of our own troops. For obvious reasons radio telephony is not used for this. Special maps are prepared which reproduce several copies, and these, with the positions marked, are dropped at the headquarters of the formation concerned. The machine calls on the infantry to indicate their positions by firing white lights and sounding a succession of "A's" on a Klaxon horn. The infantry indicate their positions in the approved way, at present either by lighting flares or moving discs. These methods are not very satisfactory, and it remains for some one to produce a means for indicating the position of advanced troops which is suitable to both services. The flare is excellent as far as the air observer is concerned, because even if it is lit in the deepest trench he can see it. It has however, one drawback—it does not indicate the strength in which a position is occupied. It is also unsuitable to the soldier because it is expendable, easily lost, subject to failure on account of dampness, and the smoke is liable to give his position away to the enemy. Discs, although they may be portable and easily manipulated by the man on the ground, are not satisfactory to the observer, who does not see them unless he happens to catch a reflected ray from the sun, and even this requires sun. The problem is difficult, but very pressing.

The close reconnaissance machine may be ordered to take photographs, which will be taken from a low altitude with a wide angle lens to show positions in detail. Oblique photographs will also be taken. These are useful for showing contours and the nature of the country over which fighting is to take place.

ARTILLERY RECONNAISSANCE.

It is not within the scope of this article to go into the methods by which fire is observed from the air in detail; they are performed by a code which is very clearly laid down in Artillery Training, Vol. II, revised Chapter XI. The code is most excellent, and this is rather proved by the fact that an observer can go up and observe for fire on a target which he does not select until he sees it from the air, with a battery whose position he does not know.

Wireless telegraphy is used from the air to the battery, and a very complete ground strip code from the battery to the aeroplane. Targets may be successfully indicated in mapped or unmapped country, and in country of which only small scale ungridded maps exist. Shoots may be pre-arranged or impromptu.

It would be well to explain the relations between the battery commander and the air observer.

Every call sent down from the air is an invitation to fire, and an offer to observe for fire. The nature of the target is always indicated, and it rests with the battery commander as to whether he engages it or not; in the case of large concentrations of artillery this decision rests with the C.R.A. When the air observer suggests a concentration of artillery fire from our own batteries upon certain targets, the degree of importance of targets which will warrant this expenditure of ammunition is very definitely laid down.

After indicating and describing the target, all the observer does is to tell the battery commander where his shell hits the ground with reference to the target. The battery commander has the ordering of the shoot, and can stop it or change to another target at will. The air observer can suggest that the guns be re-arranged if he notices that, during fire for effect, the battery goes off the target.

Great advances have been made since the war in shooting on moving targets with air observation. Shoots have been carried out upon a tank moving at 6 m.p.h. on a zig-zag course, where eight salvos have been observed in ten minutes, and the mean point of impact of the final salvos has been the target.

From the foregoing it will be seen that the code allows for every contingency, and that nothing very difficult or responsible is asked of the observer.

ALLOTMENT OF DUTIES TO THE FLIGHTS

During the war it was almost universal to have two flights of the Army Co-operation squadron allotted permanently to artillery work; the third, which was usually called the "trench flight," worked with the Infantry.

It has been realised that a fixed allotment may be quite useless to contend with the varying necessities of different phases of open warfare, and it has been decided, therefore, to issue to squadrons sufficient Wireless Telegraphy and Radio Telephony sets to enable 75 per cent. of the squadron machines to be equipped with either. Machines are already being received from the makers completely wired and fitted for the installation of W. T. and R. T. in the minimum of time.

When Army Co-operation squadrons are so equipped, a commander will be enabled to employ the greater part of his aircraft on artillery co-operation, or close reconnaissance, as the circumstances demand.

It should be borne in mind that, during any operations, there will be a phase during which the maximum effort from aircraft will be required. For this reason the utmost economy should be exercised, so that a reserve is always available. Owing to the fact that the squadron can, under varying circumstances, be ordered to carry out so many different duties the provision of this reserve is essential.

THE BRANCH INTELLIGENCE OFFICER AND THE SQUADRON ARTILLERY OFFICER.

These officers are attached to the R.A.F. from the Army, and live in Mess with the pilots and observers. Their duties, which are dealt with in detail in 'The Manual of Military Intelligence in the Field,' are to co-ordinate and distribute all information coming from R.A.F. sources and to supply all necessary information regarding operations to the R.A.F. personnel with whom they are working. This requires great tact, and an individual knowledge of the pilots and observers. In order to understand the conditions under which pilots and observers work, these officers should fly frequently as observers, and by doing this they will also gain a first-hand knowledge of the country and the enemy. The Branch Intelligence Officer is mainly concerned with general intelligence, and the Squadron Artillery Officer with artillery intelligence.

In order to carry out his duties satisfactorily, an observer must know what is already known, points about which information is required, our own order of battle, the enemy's order of battle, and so forth ; all this information is available at the Intelligence Office on the aerodrome. The Squadron Artillery Officer furnishes information concerning the positions of our own and enemy batteries, and their call-signs.

It is only by frequent visits each day to these officers that the observer can keep in touch with the situation.

COMMUNICATION—AIR TO GROUND.

Wireless telegraphy in an aeroplane is very reliable, and is used almost exclusively with the artillery. At present the receiving sets and operators at batteries are supplied by the R. A. F.

Wireless sets in machines are tested over the aerodrome before leaving on any duty, and to prevent loss of flying time in the event of failure, central wireless station is instituted in the battery area, which is in direct telephonic communication with the counter-battery office.

Radio telephony is now the authorised means of communication between aircraft and the infantry. The sets used are capable of transmitting to and receiving from a station eighteen miles away, and possess a range of four miles from machine to machine in the air.

A squadron will have a mobile reception station, consisting of a tender equipped to receive both wireless telegraphy and radio telephony whilst on the move. The tender will move with the headquarters of the formation with which the squadron is working. This should prove a great advantage in advanced guard actions, where the advanced guard commander, in company with the C. R. A., will be enabled to receive messages from the artillery reconnaissance and close reconnaissance machines simultaneously.

Message dropping is perhaps the oldest means of communication; it is very positive, and must always survive to supplement other means. Messages may, with a little practice, be accurately dropped from a height of 400 feet, flying on an even keel. This method was introduced to prevent the likelihood of the position being given away to the enemy by the machine making a dive to drop its message.

The Klaxon horn is used at present as a means of acknowledgement of ground signals, and to call for flares. It is an unsatisfactory instrument, both for the airman and for the troops on the ground. It is subject to frequent failure, it cannot be heard during the noise of battle, and it is weighty for a device of its kind. Moreover, the pilot has to shut off his engine whilst using it, and thus lose height when he is already flying low.

COMMUNICATION—GROUND TO AIR.

Radio Telephony and Wireless Telegraphy are used. Of the two, the latter is used less frequently, though it is a very successful means of communication. At present it is only used to keep in touch with a ground station while on long cross-country flights, and when observing the fire of long-range guns where the range is so great that the flash of the gun is not seen, and it is not possible to use the ground strip code.

The Aldis Lamp is perhaps the most efficient means of communication. It has the great advantage that it is easier to read under conditions of bad visibility, 'except of course in the case of fog. It is a point for consideration, however, as to whether it can be adopted, on account of weight and expendability. It may be read with ease at six words per minute from a height of 2,500 feet.

The Director Arrow is a picture device which tells the pilot what action he is to take in a given direction. It has been used with great success in frontier fighting in India, but it is believed that its scope is too local for any operations in which large forces are involved.

The principle of semaphore has been accepted in place of the obsolescent Popham Panel; the actual device is, however, still in the experimental state. Its great advantages are, over the Popham Panel, that it can be used to send messages 'in clear' to the pilot, and messages need not be coded or decoded. The devices produced are very portable, and be read at 6 words per minute from 2,000 feet.

Message picking up is a very easily improvised means of communicating with aircraft, and messages may be picked up from inverted rifles, with their fixed bayonets stuck in the ground. It is laid down that this method is only to be used in cases of emergency, but it is a favourite method with the Cavalry, as at present they do not carry any device for signalling to aircraft.

OFFENSIVE ACTION AGAINST GROUND TARGETS.

This is not the normal role of Army Co-operation squadrons, as there are machines which are better adapted to the work. In cases of necessity, however, such as would occur in a pursuit or retreat, the army co-operation machine might have to attack troops from the air. A machine has 1,000 rounds in both front and rear guns for this purpose, and can carry two 112lb. bombs or twelve 20lb. bombs.

Army Co-operation squadrons can carry out night bombing raids, but as a squadron cannot work day and night for long, it will be a matter of policy to decide which is the more important.

SUPPLY.

In cases of emergency a squadron may supply troops with rations, water and ammunition, dropping them by means of parachutes. New parachutes and containers, specially designed for this purpose, are now being experimented with.

•
NIGHT RECONNAISSANCES.

If, in future wars, aircraft should become so predominant that the majority of movement has to take place at night, it will be necessary for the Army Co-operation pilot to do a great deal of reconnaissance by night, and to have some efficient flare for this purpose.

There are flares of 300,000 C. P. and 700,000 C. P., which burn for three or four minutes, and have an illuminating radius of more than a mile.

CONCLUSION.

The work of the Army Co-operation squadron is wrapped up in that of the army with which it works, and the greatest emphasis must be laid on the necessity for liaison between the two services, and mutual understanding by each service of the difficulties and limitations of the other. Army officers should take every opportunity of visiting aerodromes, and should fly frequently as observers, and it is essential that air force observers visit the units which they have been or will be working, before and after all operations.

THE INDIVIDUAL TRAINING SEASON II.

AN ALTERNATIVE PROPOSAL.

By Major A. S. Brooke, M.C.

Anyone who has endeavoured to pilot an Infantry Company, in the Indian Army, through its individual training period during the last two years will heartily endorse the difficulty of completing the task within the allotted time, pointed out by the author of the article entitled "The Individual Training Season" (*U. S. I. I. Journal*, Jan. 1925). We may be in agreement with very much of what he says, but the remedy suggested is one to which there are certain strong objections. Though no doubt realizing them, the author does not himself point them out. It is proposed to make good this omission, and at the same time to give an opening for being in turn criticised, by putting forward an alternative scheme.

The objection is to the abolition of furlough and the substitution of 7 weeks' leave a year in its place. It is quite possible that this arrangement might suit certain classes well; but it is strongly contended that it would not suit all and that the Sepoys' view of the matter would largely depend on the station that he happened to be in. When the journey to their homes is a long one the loss of the time-honoured 3½ months would be severe. To the Gurkha and Garhwali, with the prospect of 10 to 34 days treck from rail-head to their homes, it would be a calamity. To the Indian stationed in Burma, whose passage by sea is not paid when proceeding on leave as opposed to furlough, it would mean that he would get one short leave in 3 years instead of one long furlough, for he will seldom face the expense of paying his own sea passage. Lastly one must consider the economic advantages to the men of a periodical long stay in their homes when they exercise effective control over their land.

ANOTHER REMEDY.

Duties at Frontier stations are, necessarily, heavier than in most down country cantonments. This, however, is partly compensated for, as far as training is concerned, by the higher per-

centage of men who are allowed to be absent on leave and furlough, at one time, from the latter ; namely 40 per cent. of the Battalion. Considering then a station under those rules and dividing the Individual Training Season into two equal periods, in the normal way, we obtain, during either period, approximately the following :—

	Strength.	% Absent.	% Present.
Two Companies on leave and furlough.	302	70% = 211	30% = 91
Bn. Hqrs. & H. Q. Wing....	159	35% = 56	65% = 103
Two Companies doing training.	302	...	100% = 302
Per cent. of total strength	...	35%	...
Available for urgent leave cases but not necessarily filled.	...	5% = 38	...

If outies and employed men could be supplied from the 91 of all ranks remaining from the two furlough and leave Companies the situation would be comparatively simple. Owing, however, to sickness, classes, garrison duties and many other causes, too well known to all Regimental Officers to be worth enumerating, this is hardly over the case. The best that can be hoped for is to strike a training Company off duty completely during 8 weeks, and half the Company during the remaining 8 weeks of the normal 16 weeks available for each half Battalions individual training. One of the training Companies is thus supplying half its strength to supplement the men available for duty and employ.

We will now consider the position from the point of view of the Company Commander. His first consideration is to finish his Weapon Training. Parts I, II, III and IV of Table "R" and Part III of Table "L" can be completed in 5 weeks (allowing 12 to 14 working days for preliminary training), finding his own markers except for classification practices. He has remaining 3 weeks during which he will get his Company at full strength and 8 weeks during which he will get half of them. It should be possible to arrange that this half remains composed of the same men for periods of 3 weeks at a time.

To complete Table "L" Parts I and II and Table "R" Part V he has only 5 L. A. guns, one of which is D. P. We will presume, however, that he can take over, temporarily, 5 of those belonging to one of the furlough and leave Companies, as objectionable but unavoidable expedient.

He can now instruct, or fire, 8 sections at a time (the 2 D. P. guns being passed round for stripping instructions), half his Company. These will require 2 weeks' preliminary training and 1 week on the range to fire the L. A. course, or 6 weeks for the whole Company, using the half strength periods. The range period is slightly in excess of requirements but the balance can be utilised for rifle grenade instruction.

It may be argued that 2 weeks' preliminary training is unnecessary for a man who is only going to fire the 4 L. A. practices of Table "R" Part V. It is, however, contended that, if a man is to be exercised at all in the L. A., it should be done thoroughly and that to re-teach a man who has been partly or badly grounded will take longer than to teach a man entirely ignorant of the gun. Twelve working days is little enough for a Sepoy to acquire any mechanical aptitude and to be able to remedy intelligently even the very ordinary stoppages which "R" category men are required to do.

Having then completed his Weapon Training the Company Commander has, theoretically, 3 weeks at full strength and 2 at half strength to carry out the whole of the rest of the individual training. That is to say that each man can have, at the maximum 4 weeks training. Actually, owing to religious holidays, monsoon weather conditions, transport, sanitary and cadre classes, sickness and the 101 unforeseen contingencies which will arise, he will almost certainly not get anything like as much.

Obviously it is not enough and something must be sacrificed unless individual training is to encroach on the collective training period or be left incomplete. It is contended that Weapon Training, immensely important though it is, is now consuming an undue proportion of the available time, namely 11 weeks (5 at full strength and 6 at half strength) out of the 16.

THE REMEDIES SUGGESTED.

1. That men, not actually appointed to L. A. sections, be required to fire Part V Table "R" once only and not annually as at present. They would in any case have to be put through

a course of some sort on joining a L. A. section to bring them up to the required standard. This would save 3 weeks for approximately 70 per cent. of the Company.

2. That the percentage of men allowed to be absent on furlough and leave at one time during the individual training season from a normal station be decreased from 40 per cent. to 30 per cent. This will alter the table given above to, approximately, the following :—

	Strength.	% Absent.	% Present.
Two Cos. on leave and furlough.	302	56% = 169	44% = 133
Bn. Hqrs. & H.Q. Wing	159	28% = 45	72% = 114
Per cent. of total strength	...	28%	...
Vacancies available for urgent cases.	...	2% = 15	...

The figure 133 of all ranks remaining from the furlough and leave Companies should be sufficient in a "good" station, such as all units hope to enjoy in rotation, to free the two training Companies completely; taking into consideration that the 133 men are being regularly turned over by arrivals from and departures on leave, and that the H. Q. Wing can occasionally assist by furnishing men for guard duties.

3. That the percentage allowed on leave during the collective training season be increased from 10% to 15% as a partial compensation for the cut under (2) above.

4. The acceptance of the principle that facilities must be given during the collective training period for the holding of Regimental Cadre Classes if the instructors are to be available to get to work on the men immediately the individual training season starts. (This last is practically the same as suggested "C" in the summary of the original article).

THE COMPANY COMMANDER'S PROGRAMME.

Consider the position again from the point of view of the Company Commander, this time with the suggested alterations in operation. Necessarily the example is that of a normally good station, that is one in which the duties are not abnormally heavy.

He may hope to have his complete Company, less men taken for outside classes, as opposed to Regimental Cadre Classes which should have been finished, for 16 weeks training. Of this 5 weeks will be spent in Weapon Training with the rifle, and during 3 weeks approximately 30% (made up of the men permanently appointed to L. A. Sections plus the new entry who have never fired the gun) will be under training with the L. A.; while the remainder may be under specialist training and doing recapitulation work.

Given the number of hours parade per diem he now has all the data requisite to the preparation of a progressive programme for 8 weeks training, exclusive of Weapon Training. A method by which he can distribute this time to the best advantage, while ensuring that no branch of training is lost sight of, is shown in the attached table. It will, however, be noted that the figures shown are merely explanatory of the system and that the example is not intended for a guide as to the amount of time which should be spent on any item of training, nor are the items shown a comprehensive list of all that may require to be taught during the period. All these must vary in accordance with such factors as the condition of the Company, the Station, the ground available and the likelihood of heavy monsoon weather necessitating much indoor work.

Presuming that he intends to do 4 hours work a day, including Educational Training, for 5 days a week and that he knows that 4 days during the period will be religious holidays. He has $5 \times 4 \times 2 \times 3 = 320$ half hour periods available, less $4 \times 2 \times 4 = 32$ on account of known holidays = 288.

Under column 1 he enters all items of training intended to be carried out. In column 2 he gives each a relative value according to the standard of his Company. The total half hours (288) he then divides by the relative values added together (58), in this case it will go 5 times less 2, which can be deducted later. Multiply the relative value in each case by 5 and he has the number of half hours to be spent on each item of training, column 3 (2 have been deducted from Educational Training in the example to correct the total). The remaining 8 columns show the distribution of the work, progressively, during the 8 weeks. Should the Company Commander have to hand over his Company at any time during this period his successor will still know exactly what has been done and what remains to be completed; the continuity of the work will not be broken, there will be no overlapping and each item will receive its relatively fair share of attention.

Example of a method of preparing a training programme.

1	2	3	4	5							
Item of training.	Value.	Value * Re- lative factor.	Total $\frac{1}{2}$ hours.	WEEKS.							
				1	2	3	4	5	6	7	8
Drill I. T. 1, paras. 18 --50 and 88.	4	20	20	15	5	...	...	...	...	...	...
Rifle exercises, I. T. 1, ^a paras. 51-83.	4	20	20	...	10	10	...	...	...	...	...
Platoon Drill. I. T. 1, paras. 90-94.	3	15	15	...	...	...	10	5	...	...	...
Extended order drill, I. T. 1, paras. 95-97.	3	15	15	...	...	...	6	3	3	3	...
Physical Training ...	7	35	35	5	5	4	5	4	4	5	3
Bayonet Training ...	5	25	25	...	...	5	5	4	3	4	4
Bombing ...	2	10	10	5	5	...	...	...	...	...	...
Use of entrenching tools.	2	10	10	5	5	...	...	...	...	...	...
Reconnaissance and Scouting.	2	10	10	...	...	4	4	2	...	...	...
Knotting and lashing	1	5	5	...	...	1	...	2	2	...	...
Transport loading ...	2	10	10	...	...	..	...	2	4	4	...
Wiring ...	3	15	15	...	...	...	...	...	6	3	6
† Visual training and J. D.	2	10	10	...	...	...	...	...	...	5	5
Night work ...	2	10	10	...	...	...	...	...	...	6	4
Educational training and lecturers.	16	80	80 - 2 = 78	10	10	8	10	10	10	10	10
Total half hours avail- able.	(58)	...	288	40	40	32*	40	32*	32*	40	32*

* Less 1 day (8 half hours) a/c religious holiday.

† Should be sandwiched with the weapon training.

PROTECTION ON THE MARCH IN MOUNTAIN WARFARE.

By Captain B. Bradshaw-Smith.

Colonel Milward, in his very interesting article, in the January number of the Journal, has invited discussion of the merits of the Block system, as opposed to the normal system of protection on the march in Mountain Warfare.

In the following pages the writer has endeavoured to bring out, what he considers the outstanding advantages of the former. It must, however, be made clear that it is the Battalion Block system that is being considered, and not the Company Block system. The Company Block system is considered, but merely as part of the other.

In his paragraph "Occasions for blocks" Colonel Milward states that in reality the two systems do not differ very much, and with this the writer agrees, for there appears to be no reason why the number of troops used, or the methods by which they are advanced or withdrawn need differ greatly with either system. If this is so, it is only necessary to consider the merits of the organisation and command of the two systems.

SOME OBJECTIONS TO THE NORMAL METHODS OF ADVANCING AND WITHDRAWING PICQUETS, NOT PRESENT IN THE BATTALION BLOCK SYSTEM.

(a) *Organisation.*—In all warfare the present tendency is to detail complete units or formations for protective duties. Thus a Battalion may be detailed as Advanced Guard to a Brigade, or a Brigade to a Division, even though the number of troops so detailed is excessive for the work on hand. The risk involved in trusting the subordinate to use his troops economically, is deemed a lesser evil than that of working with improvised formations, for which proper staffs do not exist.

In Mountain Warfare an Advanced Guard is such an improvised formation. In case of a mixed Brigade, an Advanced Guard, with picqueting troops, will almost invariably consist of more than one Battalion, in fact F.S.R. II, 1920, Section 168 (2) states that "in some cases a large portion of the whole fighting force of

a column may have to be employed to picquet heights." Such an Advanced Guard becomes a large unweildy formation, not at all corresponding to the Advanced Guard in open warfare.

(b) *Chain of Command.*—When more than one Battalion is detailed to the Advanced Guard, a new link has been added to the chain of command, involving all the corresponding disadvantages, such as an intermediate set of orders, etc.

Any system which cannot normally be used, with the existing war organisation, must be at a disadvantage compared with one that can.

(c) *Command of Picqueting troops.*—In the normal system enough use is not made of the commanders of picqueting battalions. Their's is a comparatively insignificant, not to say unpleasant, position. Their troops are deployed in position not of their selection, sufficient attention may not be paid to the organisation of their companies, and their troops are withdrawn under the orders of yet a third person, the Rear Guard Commander.

The advantages of the block system in this respect are clear. The Battalion Commander can place his Companies, either each on one bank, or each holding both banks depending on the width of the valley, ground, etc., taking care that Company areas are as compact as possible.

If the original dispositions are unsuitable he may modify them later. While the main body and transport are passing, he can thoroughly examine the ground and make his plan for withdrawal and he is able to communicate this plan to his companies, to the neighbouring Battalions and to the supporting Artillery.

Compared with a Rear Guard Commander, who can have no opportunity of studying the ground, such a Battalion Commander should be capable of conducting a more efficient and rapid withdrawal.

(d) *Special Training.*—In spite of the fact that the Advanced Guard and Rear Guard are detailed permanently throughout the march, it is considered that the normal system of protection in Mountain Warfare, is so different to open warfare, that the similarity in this respect does not give any great advantage.

Such artifices, as road sentries, picqueting slips and the red flag, are only necessary with the normal system, and exemplify how such a system demands special training.

It is considered that, as the flank protection is immobile, such protection approximates more to the outposts of open war, than to the Advanced Guard of open war. The operation is defensive in nature and the teaching of F. S. R. is to divide defensive position into areas and to allot definite units and sub-units to their defence. This is the whole essence of the block system.

In order to exemplify how the block system helps to express Mountain Warfare in terms of the normal teaching of F. S. R. the operations of a company detailed to a sector of a Battalion block will be followed. It will be supposed that the Company is taking one side of the route only.

The advance consists of attack on a one platoon front in considerable depth. Platoons are allotted objectives, and leapfrog through each other until the whole sector is taken. Platoons, as they take their objectives, cover the advance of the next platoons and covering fire of M. G.'s and Artillery is arranged for by Battalion H. Q. The simultaneous advance of another company on the opposite side of the route helps to form a picture of a perfectly normal operation.

While the column is passing, the company forms an outpost line, differing little from that of open warfare.

When the time comes to withdraw, platoons retire in succession, as in a rear guard action. The Company Commander will then probably be with the Battalion Commander, who alone can co-ordinate the retirement on both banks.

In the above, it is admitted that Battle dispositions are taken up on each occasion, but against tribesmen, most authorities insist that each position should be taken up and evacuated as if the enemy were present, so that this would not seem a great objection.

THE COMPANY BLOCK.

Colonel Milward has very clearly shown the weakness of the Company block system and it is doubted if its use, as described by Colonel Kirkpatrick, in the July number of the 'Journal,' would ever become normal.

Its use would largely depend on the ground. Where the valley is wide and the hills are massive, it would appear more desirable to have the whole of one company on one side of the route. Where however the valley is narrow and the length of the Battalion block is great, company blocks might be used with advantage. In any case, where Battalion blocks are detailed, the

method to be employed within the Battalion, should be left entirely to its commander.

ADVANCED AND REAR GUARDS.

As the writer conceives the block system, the necessity of Advanced Guards and Rear Guards, detailed as such, does not exist.

The forward troops in the one case and the rearmost in the other take the place of the Van Guard and the rear Party.

Each Battalion Commander, as in all forms of war, will have a reserve. This reserve will advance by bounds along the Nullah bed and will provide sufficient protection for the M. G's. and Battalion H. Q. during the advance. Companies will leapfrog through companies, and platoons through platoons, each assisting the other with covering fire. If severe opposition is encountered, the Battalion Commander can use his reserve and also any companies not yet in position. In addition the next Battalion coming forward is a potential reserve.

In the withdrawal the process is reversed. Time will have been available to make all arrangements and the retirement should be automatic and rapid. In case of enemy following up the retirement the Battalion reserve may be used and if necessary the column reserve called on.

The only Advanced and Rear Guards necessary will be those with the main body, which will in fact be more of the nature of an escort for the transport.

THE COLUMN RESERVE.

The Column Reserve, mentioned in the last paragraph, will consist of all troops not detailed to protect the march and to escort the transport. It should be available to assist any Battalion that is being pressed. As the rear is usually the danger point, it might normally move by bounds, always keeping within a mile and a half of the rearmost troops.

If the reserve was needed by the leading troops, a portion could be detailed to remain in the sectors of each rear Battalion in turn. In such case, if necessity arose, the reserve would act under the orders of the rear Battalion Commander. The column reserve as above depicted, corresponds in effect to the main guard of the rear guard.

SPEED.

It is not considered that the block system is a slow method of route protection. In the advance to and retirement from Wana

in 1923 the pace of the infantry depended only on the pace of the transport. Battalions detailed for blocks left camp at intervals of about one hour. By the time the first Battalion was in position the second arrived to carry on with the next block. There was no delay and units did not leave camp before it was necessary. The head of the transport was timed to arrive just as the forward Battalion was in position covering the new camp, and was able to move without check.

The speed of the withdrawal was dependant on the tail of the transport, and in some measures to the rolling up of the telephone cable which accompanied the Column. With the close co-operation that is possible between Battalions, no delay should be necessary when they fall back through each other.

STRENGTH NECESSARY WITH THE BLOCK SYSTEM.

Colonel Milward mentions that a block system is uneconomical on two counts:—

Firstly owing to separate rear guards, and

Secondly owing to the difficulty of laying out blocks from the map.

With regard to the first it has been endeavoured to show that a special rear guard is not required.

With regard to the second point, maps of the frontier are ever growing better and it is hoped that aeroplane photographs, especially obliques, may help towards a solution.

Since the tribesmen have armed themselves with high velocity rifles, the number of troops employed on protection has increased, and it is considered that occasions will be few where a battalion will be required to picquet more than four miles of route. Up to three or four miles the block system would appear to be eminently satisfactory.

Even if still further extended, the arguments previously given hold good. In such cases strong opposition can hardly be expected and a combination of a battalion reserve and a column reserve will ensure the safety of the rear.

It may be then stated, that battalion blocks will vary in size, inversely to the amount of opposition expected. If the tribesmen are in force the length of the march can in no case be great. If, on the other hand, little opposition is expected, a large proportion of the whole force may safely be used on protective duties and the strength of the column reserve may be correspondingly reduced.

CONCLUSION.

The normal system of protection appears to be a legacy from a former period, when the principles of war organisation were not so well understood as they are to-day. A system under which troops come under the command of three individuals during one march cannot be altogether sound.

It is admitted by most authorities that both the Advanced and Rear Guard Commanders should be experienced officers, well skilled in Mountain Warfare. The reasons why such skill is necessary are twofold.

Firstly because their tasks are over centralized, for they are called on to do the work of the Commanders of the Picqueting Battalions besides handling their own commands, and, secondly in the case of rear guards, they have to decide as to the sequence of withdrawal of sub-units, covering fire positions, etc., over ground on which they have only just arrived a very difficult task.

Even if no instance of the successful employment of the block system in hard frontier fighting can be quoted, the advantages that it possesses may well prove its value. For its success, a high degree of co-operation between neighbouring units is of the first importance, but co-operation is one of the main principles of war and is constantly practiced in open as well as in frontier warfare.

It is not claimed that the block system is infallible, nor is it denied that the normal system might on occasions be used with advantage, but it is thought that it is more in line with modern teaching, especially as regards organisation, and that it more closely approximates the open warfare teaching of F. S. R.

COST ACCOUNTING.

II.—COST ACCOUNTS FOR COMMANDING OFFICERS.

By Lieut.-Colonel R. Prince, O.B.E.

1. In the first article we examined general principles and we may tabulate the results which we secured as follows :—

- (i) We defined administration as being the art of obtaining the best possible results from the means at our disposal. We decided that money was one of our principal means and that it was necessary to compare the means with the result attained.
- (ii) We decided that the money budgetted was the means at our disposal and that its expenditure was the method we adopted of obtaining the result, namely the cost of an efficient Army.
- (iii) We agreed that cost accounts bring cause and effect, expenditure and cost, into close juxtaposition and consequently enable us to compare the two.
- (iv) We saw the difference between price and cost price, and decided that, in the Army, cost price is incidentally merely a means of defending ourselves from loss if we sold to a third party, but mainly it is the method we adopt of carrying the incidence of cost to the correct service rendered.
- (v) We decided that the object of our accounts was to find the true cost of the various Arms of the Service as distributable in normal peace stations and that there was no intention of obtaining the relative cost of various arms in each station separately, which would be useless to us.
- (vi) (a) We examined the difference between cost and expenditure and decided that, in the Army, the chief cause of this difference was the length of time that articles were in use and in wear.

(vi) (b) We then saw how the expenditure figure for the year entered the stock account and how the cost figure for the year was passed on to one of the final heads.

2. I think that the above headings give a fair summary of the results obtained. Heading VI (b) is a most important one to understand and undoubtedly the student will have to make an effort to grasp it. The explanation which I gave in the last article contained no reference to such incidental details as the difference between the two shilling and the one and six penny rate of exchange, and the difference between the purchase price and vocabulary rate. I omitted all reference to these items because I did not want to overload a difficult subject, but all officers should see how departmental charges which are included in the vocabulary rate are carried to Head II, so as to allow of a comparison between the charge made and the expense of the departments. Put shortly it is done as follows :—

When the article purchased is brought to account (say in an Arsenal) Head IV-L is credited at the purchase rate and Head (IV) (d) is debited at the vocabulary price and the difference is credited to Head II Departmental Charges.

With regard to IV (a) I think that perhaps sufficient point has not been made of another very considerable difference between cost and expenditure. Namely that the bulk of the expenditure is incurred in the supplying department whereas the bulk of the cost is incurred in the unit. In other words the I. A. O. C. and the I. A. S. C. are merely agents for the units and if expenditure varies it is no good asking the agents to state the cause. We want to deal with the principals, that is with the units.

3. These articles are intended to give assistance to those who deal with the cost account instructions but those transactions must be read and should be read with a Budget Estimate, before these accounts can be clearly and completely understood. I cannot and do not hope that in a mere series of magazine articles I will be able to explain the whole of the cost accounts system unless those instructions about which I am writing are also carefully studied.

I believe now that we have dealt with the main principles of the Army Accounts. If there is anything obscure I trust that future correspondence from readers to the Editor will enable

me to revise these articles after having discovered the readers' view point, if they are later considered to be worth publication in another form.

In any case I have undertaken to reply to correspondents so far as I possibly can.

4. Having settled these main principles of Army Cost Accounting we will now see how the Officer Commanding as a unit fits in to the scheme.

The same principles apply to all fighting units. The accounts differ in name and refer to different articles because the activities of the units differ; for instance, I do not believe that any cavalry regiment submits a petrol account.

As an example we will take an Indian Infantry Regiment and for this purpose I have obtained six consecutive months' accounts actually submitted to a Controller by an Indian Regiment.

5. No Commanding Officer can possibly be aware of the year's expenditure on his unit but the present accounts do show him the cost. He is only concerned with the following duties:—

- (a) To account for all monies paid to his unit.
- (b) To account for all stores issued to or in charge of his unit.
- (c) To watch the cost of his unit and, so far as he can, to lessen such cost without detriment to the utmost efficiency of his unit.

I do not intend to go into (a) and (b) above, these questions are dealt with in the regulations and have nothing to do with cost accounting. I often put up a private and personal prayer that the day may yet arrive when regimental internal accounts will be maintained on a proper double entry system and in accordance with one fixed, properly laid out, set of ledgers. I feel convinced that after the great initial difficulty was overcome the relief to the Army as a whole would be immense.

I believe that the Signal Company at Jubbulpore in 1921 and onwards for a few years (and perhaps upto date) had or has a set of double entry ledgers with a running personal account for each signaller. Few Army Officers have the knowledge to lay out a good set of double entry accounts and few could keep them properly. But when understood and properly maintained they are of untold benefit to the Commanding Officer. Primary Accounting for the cash and the stores in his charge

must remain the duty of the Commanding Officer, and therefore the unit accountant cannot and should not be left in charge of the primary accounting on a system not understood by the Army Officer. This is the difficulty of such an introduction, but I am convinced that if the Army Officer will learn double entry he will save himself immense worry and trouble and he will save the State considerable loss particularly in time of war. The *Depôt* Accounts could not have got into the confusion into which so many arrived by the end of the war, had they been maintained on a properly understood double entry system.

But I am straying from my subject which is cost accounts.

6. The Commanding Officer is given the cost of his unit every month by the unit accountant. The form on which this is presented to him is called Form V. This Form shows the Commanding Officer the economic result of his administration of his unit during the past month. The fact that this information is not quite complete does not vitiate the results which are obtained. The present figures are incomplete in so far that the cost of the Medical, Veterinary, and Engineering services are not at present fully debited against a unit. This however does not lessen the value of the information which is already contained in these accounts, for we can even now watch whether money is wasted in a unit under ten different heads of account. I believe that there is no intention of ever debiting the higher administration as an overhead charge against the unit; such a procedure would only obscure the real result we are trying to obtain, and we can always make the calculation, whenever it is necessary for such a purpose as arriving at a capitation rate.

7. This Form V then shows a Commanding Officer the cost of his unit wherever the officers or men are serving unless they are seconded. It shows him the number of officers and men drawing pay on the first of the month and the number of animals present on that date; furthermore it shows him the cost of his unit during the month under twelve different heads. We will suppose always that the Commanding Officer is satisfied with the efficiency of his unit. Then his duty still demands that he should see that money and stores handed over to him by Government are not improperly used or wasted, but that the best possible use is made of them. An examination of the variations in his cost figures month by month will give him a retrospect upon his past actions and those of his subordinates, and will give him an invaluable and practical guide to his proper future procedure.

8. We will now see how these variations should be examined, and to do this we will take our set of six consecutive Form V. In doing this we are of course at a great disadvantage as compared with the actual Commanding Officer who not only has an intimate knowledge of his own unit but has also a personal recollection of the orders he gave during the preceding month and is now only faced with the financial result of his own actions. I would therefore ask you to turn to the appendix to this article where the figures and the remarks thereon are to be found.

9. Had the Commanding Officer examined his July figures in August, he would have found the erroneous payment under provisions and prevented its recurrence in that month and his men would not have been under stoppages on this account for so long a period.

10. Unfortunately I have chosen a good regiment whose cost is normal. There is no apparent waste of money in it, provided the Commanding Officer is satisfied that those miscellaneous stores were really necessary in November and December. But you can see that the process is not a lengthy one if carried out each month. It would take perhaps half an hour a month or less if nothing is wrong. The Commanding Officer remembers sending the rifles back and he remembers auctioning the old stores, he sees at a glance that his ordnance figures are about normal, he is satisfied with the general run of the pay figures, and he is satisfied that the clothing allowance figures would fluctuate as they have done with reference to the number of recruits. He knows by looking at these figures that there is nothing seriously the matter with his unit. I have had to prove to you in the appendix these figures are correct but the Commanding Officer would have made no comment except in the August account.

But when I tell you that over a period of two years one Indian Infantry Unit will use ten times the quantity of ordnance stores consumed by another, you will see that some such scrutiny as this is useful and even necessary. No Commanding Officer, with the present multiplicity of ordnance headings, can watch the expenditure of each separate article, but he can see when his ordnance cost increases, and he can then find out the cause of it; and if the cause is ignorance, or careless handling, or a bad article of supply, he can put a stop to it.

11. It will be argued that this is all accounting and not soldiering; but apart from the obvious duty of looking after Government stores I maintain that it is good soldiering. There

are so many stores now required in war that unless, for instance, the electrical contrivances, the machine guns, etc. are properly looked after in peace time with trained handling and trained care, the replacements required under the rough conditions of war will be immense and will strain the resources of the supply train. Consequently it must be known (a) that units are properly trained in peace time in the handling and the care of the ordnance stores entrusted to their charge, and also (b) that they habitually carry out this training. No Commanding Officer, and certainly no General Officer Commanding, can possibly obtain this information by turning over the pages of bulky equipment ledgers or by comparing long lists of condemnations in various regiments, nor does the latter point become apparent during inspections. The cash value of stores consumed is a simple figure and a ready guide, and it will always warn the Commanding Officer and the higher Commands whether it is worth while making enquiries on these two points.

12. The Commanding Officer of an Indian Infantry Regiment looks at all variations in order to obtain the comfortable feeling that things are going right. Brigades and Districts can leave the Pay charges, Provisions, and Clothing alone (unless some outstanding figures are given which obviously require explanation) but they watch carefully Ordnance, Fuel and Light, Other Stores, Transport and Miscellaneous. They watch ordnance, so as to pull up the unit which mishandles its stores if the figure is heavy and if the figure is light it may show that musketry is not proceeding as it should.

Fuel and Light, Miscellaneous and perhaps "Other stores" will generally show the District the result of their administrative orders, and under these heads they may be able to save money for other purposes. Over Forage they can hold no more than a watching brief, the matter is not wholly in their hands. Transport charges again have little to do with Districts; the moves of units are out of their hands, and so too are bulk movements of stores.

* The M. E. S. begins this year to come on to a cost basis. This will affect District considerably but at present no results have come forward.

13. In my opinion a District will obtain the best results by watching the progressive figure (*i.e.*, the total figure to date) rather than the monthly figure because this gives the more general result, but the monthly figure should be watched by the

Commanding Officer because he can remember every detail of each important variation during the preceding month and this gives a more particular result. This concludes my conception of the duties of a Commanding Officer in respect of cost accounting. It is very simple and may be summed up in the statement that he scrutinizes the result once a month when he sees the monthly figures, and, if he is wise, he also sees the year's progressive figures. Brigades and Districts then watch the progressive figures, more particularly under certain heads. The next article will be on the subject of budgetting and the way in which Districts function in their watch on expenditure.

FORM V.

Preliminary Account of Expenditure on Maintenance of Units (Regular Army) for the months from July to December 1924.

Names of months.	NUMBER DRAWING PAY ON FIRST OF MONTH.		NUMBER PRESENT ON FIRST OF MONTH.		EXPENDITURE FOR THE MONTH.														REMARKS.					
	British officers.	Indian officers and other ranks.	Indian followers.	Horses.	Ponies.	Mules.	Bullocks.	Camels.	Pay charges.	Provisions.	Forage.	Clothing.	Animals.	Ordnance.	Fuel and light	Other stores.	Pay of religious teachers.	Pay of educational establishments.	Provisions of religious teachers.	Fuel and light of religious teachers.	Miscellaneous.	Transportation charges	Total.	Rs.
July 1924	9...831	42	7	3	...	...	...	...	27,597	7,510	220	6,600	...	...	3,262	1,063	8	75	206	16	2	441	263	47,265
August 1924	10...840	43	8	3	...	...	...	...	20,976	7,131	312	2,758	...	...	1,064	1,118	2	75	191	26	4	1,197	446	44,206
September 1924...	10...806	37	3	3	...	...	...	...	29,517	6,174	272	1,155	...	...	1,167	1,032	218	75	191	18	3	530	22	40,404
October 1924	10 766	37	8	3	...	...	...	...	29,586	7,131	216	1,770	...	...	1,103	1,117	52	75	...	24	4	760	446	42,284
November 1924	12...727	40	8	3	...	...	...	...	20,170	6,378	240	3,547	...	...	4,303	1,077	184	75	...	16	2	1,035	432	47,459
December 1924	13...738	39	9	3	...	...	...	...	31,612	6,962	263	5,715	...	...	1,458	1,146	445	55	...	32	5	1,320	420	49,433
Total	.....	...	...	...	...	...	...	...	1,78,458	41,286	1,623	21,575	...	...	12,357	6,550	909	430	58 8	132	20	5,283	2,029	2,71,140

I. Charges.

The figures for the months from July to December 1924 have been on the increase. A comparative statement is attached showing how the figures have fluctuated with reference to the rise in the Number of officers and decrease in the Number of Indian Officers and other ranks.

	Pay Officers.	Pay Indian Officers and Ranks and followers.	Clothing allowance Kit money.	Total.
July 1924 ...	7,593	17,717	2,189	27,499
August 1924 ...	8,879	17,530	3,325	29,734
September 1924 ...	9,423	17,698	2,175	29,296
October 1924 ...	10,129	17,156	2,089	29,374
November 1924 ...	11,439	16,857	1,866	30,162
December 1924 ...	12,211	16,505	2,792	31,508

Pay of Officers.

Although the pay strength of officers on the 1st of August, September and October 1924 has been 10, the charges on account of pay have been steadily on the increase, which is due to (1) a senior officer having rejoined the unit and a junior officer being transferred to another unit, (2) officers rejoining from leave and claiming arrears of furlough pay, and other officers transferred to other units.

Pay of Indian Officers, other ranks and followers.

Although the pay strength on the 1st of September 1924 is considerably decreased compared with that on 1st July and August 1924, the pay charges have increased in September. This is due to discharges and transfers from the unit and entertainments of new men with arrear pay for broken periods of previous months.

Clothing allowance.

The figures under this sub-head have fluctuated with reference to Number of recruits from the Depôt and grant to them of Hindustani Clothing Allowance.

II. Provisions.

The figures under this head are based with reference to ration strength of the Unit. The figures for July and August 1924 include erroneous issue of money compensation to certain followers.

The erroneous payment was adjusted in September 1924 and consequently there is a fall in the amount brought to account in that month. In October 1924 there has again been a little rise in the figures in due to arrears, etc., of money compensation granted to combatants. The rise in figures December 1924 over those appearing in November 1924 is due to the issue of extra meat and milk with reference to Army Instruction India 1122 of 1924.

III. Forage.

There are very small variations in the figures appearing under this head which are due to the issue of substitute fodder, with reference to Army Instruction India 334 of 1924, and changes in the scale of Bran, Barley and Gram.

IV. Clothing.

Abnormally large amounts appear under the months July, November and December 1924. The amount for August 1924 is also slightly higher than the remaining months. The causes for the heavy amounts during the 4 months are as follows:—

July 1924—Rs. 6,600.

	Rs.
Free issues to recruits and replacements ...	4,088
Free issues of clothing, etc., with reference to revised scales sanctioned in Army Instruction India 920 of 1923 ..	1,016
Articles condemned and auctioned ...	1,064
Total	6,168

August 1924—Rs. 2,758.

	Rs.
Free issues to recruits ...	3,061
Counter-balanced by receipts on account of clothing received back from men discharged within 3 years ...	544
Total	2,517

November 1924—Rs. 3,547.

Free issues to recruits ...	3,674
Counter-balanced by withdrawal of clothing from men discharged ...	—203
Total	3,471

December 1924 — Rs. 5,715.

	Rs.
Free issues to recruits	6,748
Counter-balanced by clothing withdrawn from men discharged within 3 years	—963
Total	5,785

V. Ordnance..

The figures appearing under this head during July and November 1924 are abnormally high and the figures may be analysed as follows:—

July 1924—Rs. 3,262.

	Rs.
(1) Practice ammunition issued during the month	944
(2) Petty stores charged off as free issues, <i>vide</i> Army Instruction India 594 of 1924 ...	238
(3) Stores condemned and sold by auction ...	1,150
(4) Annual supply of petty stores charged off to free issues	703
Total	3,035

November 1924—Rs. 4,303.

(1) Practice ammunition issued during the month	985
(2) Difference between new and unserviceable arti- cles returned to Arsenal	975
(3) Rifles returned to Arsenal as unserviceable ...	2,248
Total	4,208

VI. Fuel and Light.

There is no abnormal variation in the figures under this head, but, as the strength of men on pay had decreased during the last 3 months (October to December 1924), the expenditure under this head has not shown corresponding decrease. This is due to the strength on Ration Return not having varied to any appreciable extent, and charges for Kerosene having almost doubled during the winter months.

VII. Miscellaneous.

There is a perceptible rise in the figures appearing under this head in the months of August, November and December 1924. The figures are analysed as follows :—

August 1924—Rs. 1,197.

	Rs.
(1) Indent for service labels	550
(These are charged periodically.)	
(2) Punka pulling charges...	128
(3) Normal monthly charges on account of contract, Miscellaneous allowances, Incidental expenses, etc.	500
Total ...	1,178

November 1924—Rs. 1,035.

(1) Deferred pay to Indian Soldiers	215
(2) Miscellaneous expenditure incurred regimentally on account of stores	286
(3) Normal monthly charges shown as at item (3) under August 1924	500
Total ...	1,001

December 1924—Rs. 1,320.

(1) Indent for service labels sent periodically	500
(2) Miscellaneous expenditure incurred regimentally on account of stores	306
(3) Normal monthly charges	500
Total ...	1,306

(a) The normal monthly charges under this head have been assumed as Rs. 500 as per details in the margin. The figure appearing under this head in July 1924 is lower than the normal figures which is due to charges under Incidental expenses

	Rs.
Mess	125
Band	100
Contract	85
Incidental	80
Coney. Establishment	110
Total ...	500

being lower than those shown in the margin. Similarly the figures appearing in September 1924 are comparatively very low, i.e., Rs. 530. This is due to no charges on account of Incidental expenses being brought to account (minus 80) and counter-balanced by a charge of Rs. 110 on account of Punkha pulling.

F. S. R. AND THE PRINCIPLES OF WAR.

By "Ordnance Mule."

The ancient alchemists considered that there were four elements: Fire, Water, Earth and Air. None of these finds a place in any list of chemical elements to-day; nevertheless modern chemistry owes a great debt to those unknown pioneers who first took their courage in both hands and hazarded an opinion as to what were the elementary substances of which matter is composed. No doubt their predecessors had long argued about the "elements of matter" without suggesting what these might be; but no progress in the science of chemistry was possible till a definite, even though erroneous, hypothesis was made.

In the same manner writers on strategy have long referred to the immutable principles of war; but it was not until the publication of the 1920 edition of Field Service Regulations that any definite opinion was expressed as to what these principles were. But as it was necessary to criticise and improve upon the original list of elements before the science of chemistry could be of any practical use, so also this first effort at producing a list of the principles of war must be subject to criticism and analysis if it assist the progress of the science of war. The bold effort of the General Staff deserves our admiration; but any attempt to treat this first tentative hypothesis as a dogma the truth of which it is heresy to question will only strangle the progress of military knowledge.

The following criticisms on the list of eight principles of war given in F. S. R., Vol. 1, section 2, are therefore made in all humility, bearing in mind the fact that the section was composed after due deliberation by some of the best brains in the army. If the writer is wrong, no doubt some cleverer person than he will point out his error.

The first principle is Maintenance of Objective.

There seems to be very little to add to what is already written in F.S.R. on this point. But when we read the second principle, Offensive Action, we at once see that the first really

includes the second. Nevertheless, war being an art and not an exact science it is perhaps not fair to insist on the several principles being absolutely independent of one another.

When however we go on to the third principle, Surprise, it becomes clear that, if it be a principle at all, it is one of a very different class to the second. For it is possible to imagine a war in which one contestant may entirely disdain to use the weapon of surprise, and yet through brute force of numbers win the victory. But it is inconceivable that a contestant, however powerful, who entirely abjures offensive action should be successful. His troops would be of no more effect than a row of statues; they could stand with fixed bayonets in an attitude of defence, but to fire a shot or lunge with their bayonets would be offensive action and forbidden. Offensive Action, then, may be classed as a fundamental principle; Surprise only as a secondary one.

Another point about Surprise is that it is only half a principle. The other half is principle VI—Security. Security is the negative form of surprise; it is preventing the enemy from surprising you. In truth Security is really much more of a principle than Surprise; Security is a necessity, Surprise only a strategem of war. Even Security however is not a fundamental principle in the same sense as is Offensive Action; an army that relies on offensive action but adopts no other measures of security may yet win. Offensive Action is in itself a means of security, and Surprise only a form of Offensive Action.

Concentration of Superior Force, if, as F. S. R. is careful to explain, it includes moral as well as material force, is undoubtedly a true principle—as fundamental as Offensive Action; which indeed it should precede. First the force is concentrated, then used offensively. Economy of Force on the other hand, is really part and parcel of concentration. It is impossible to concentrate force at the decisive time and place without economising it at other times and places. Economy of Force therefore does not deserve to rank as one of the fundamental principles of war.

Security has already been dealt with. Mobility however presents a fresh problem. F. S. R. tells us that mobility is the chief means of inflicting surprise. This is true; it is also the chief means of maintaining the objective; of acting offensively, and of concentrating superior force. In fact mobility is undoubtedly a fundamental principle in so far as war cannot be carried

on without it ; one can not imagine two statues fighting. But really mobility is a postulate rather than a principle ; not only war but all other forms of human activity would be impossible without it. It may be said that the word mobility is used in this section of F. S. R. in a technical sense ; that the attainment of flexibility and the power to manoeuvre necessitates a specialised form of training, without which an army can fight, but is not likely to win. If so it may perhaps be considered a strategem of war, like Surprise, but can not rank as a fundamental principle such as is offensive action.

Only co-operation now remains to be considered. There is little to quarrel with in the claim of co-operation to rank as a fundamental principle of war. War implies a contest between groups of two or more men ; if the individuals composing a group do not co-operate it is not war, but a series of individual tussles.

What is really required is some clear thinking as to what constitutes a principle of war. No doubt the clear thinking has taken place ; if so the expression is at fault, and the process of reasoning has not been set forth in so fool-proof a manner as to enable the writer of this article to understand it. The writer has assumed a principle of war to be a course of action without which war can conceivably be carried on, but cannot conceivably be won. A course of action without which war can conceivably be both carried on and won is a *strategem*, but not *principle* of war. On this assumption only the following can be considered as true principles of war ; viz., Maintenance of Objective, Offensive Action, Concentration, Security and Co-operation ; and there is some doubt as to whether the first two are really separate principles. It would be instructive if wiser brains than that of the writer would consider the question as to what fallacies, if any, lie behind the arguments contained in this somewhat confused and imperfectly expressed article.

MILITARY NOTES.

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UNITED STATES.

TANK DEVELOPMENT.

1. *Organization.*—Since the war the Tank service in the United States Army has become part of the infantry branch under the Chief of Infantry.

At the present time it consists of the following units.—

Tank Headquarters.

1 battalion light tanks	...	Camp Meade, Maryland.
1 battalion heavy tanks	...	Camp Meade, Maryland.
School detachment	...	Camp Meade, Maryland.
1 composite tank battalion (373 men).	Infantry School,	Camp Benning, Ga.
6 platoons (53 men each) (active)	As part of inactive divisions	in corps areas.
1 company	...	Hawaii.
1 company	...	Camp Dix, N.J. (with 1st Div.).
1 company	...	Camp Lewis, Wash. (with 3rd Div.).
1 company	...	Fort Sam Houston, Texas (with 2nd Div.).

2. *Personnel.*—There are 111 officers and 1,642 enlisted men, besides civilian employees, including 10 mechanics in the Tank Service.

There is considerable turnover in the enlisted personnel. The authorities complain that as soon as a man is trained he can get much higher wages in a automobile works or shop, which the majority of men are not slow to take advantage of.

3. *Tank School.*—The Tank School is commanded by Colonel S. Simmonds, who recently took over from Brigadier-General S. D. Rockenbach when the latter was promoted.

There are 7 instructors, not including officers on duty with organizations (units) who also act as instructors.

Last year 72 officers and 530 enlisted men of the Regular Army passed through the Tank School, also 2 National Guard officers and 6 Reserve officers.

4. *Equipment.*—The types of tanks at present in the service are:

The Mark VIII (heavy).

The 6-ton Renault (light).

There are 100 of the heavy type and several hundred light tanks on hand, all remaining over since the war. These machines are considered practically obsolete, but are useful for training and demonstration purposes, and could be used in emergency until something better was available.

5. *Policy and development.*—Since the war tank experiments and development have been going on as far as the limit allowed by appropriations. No tank units have been issued with new types since the war and no type can be said to have been finally decided on.

The policy is to develop pilots in order to determine the most satisfactory type to put into production in case of emergency and to have specifications and plans all ready for immediate use when required. Quantity production is not to be attempted at the present time and the present types are to be continued in the service until the most satisfactory type of tank has been determined by experiment and trial.

6. *Experimental types.*—The following experimental types have been completed:—

The Christie 14-ton convertible track and wheels, carrying a light gun (2.24-in.), 3 machine guns, and a crew of 3.

Medium A, 1 and 2, weighing 20 to 24 tons, carrying a light gun and machine gun and a crew of 3. In the latter of these two types the track has been improved, and there is a semi-pneumatic control. Their maximum speed is 25 miles per hour.

Considerable difficulty has been experienced with the transmission from the engine to the track, partly due to the fast running engine utilised, unsatisfactory design of change-speed and reverse gears, and attempting too great a range of speed.

Experiments are being carried out on similar lines to our own, including the use of hydraulic transmission, with which it is

understood no great advance has yet been made. It would appear that the present tendency is to use a slower running heavier engine, with not more than 2-speed epicyclic gears:

It was considered by the military authorities that the weight of the medium tanks was excessive, and should be reduced to 15 tons which is the limit placed on the weight a pontoon and similar bridge can bear. Consequently the following types are now under construction :—

Christie 9-ton, which is a smaller edition of the Christie mentioned above.

Medium 15-ton, which has several improvements in the track, transmission, pneumatic control, etc., on the present types of this class.

Although several tank expert officers have said that they consider a speed of 12 miles per hour is all that is required, they consider it would be a valuable asset to be able to travel at a high rate of speed in emergency. In the newer types a speed of 25 miles per hour, or even greater, is being aimed at.

7. *Tank smoke screens.*—The Chemical Warfare Service are developing a smoke curtain for use in tanks. The 6-ton tank has been fitted up with one of these, and experiments in the laying of smoke screens by tanks are now being carried out.

8. *Anti-tank defence.*—While it is considered that the best solution to the anti-tank problem is another tank carrying a 6-pr. or 75-mm. gun, it is thought that for some time to come direct fire from a light field gun within 1,000 yards range will be the best anti-tank defence.

The present type of 75-mm. gun is held to be deficient in traverse for the purpose, but it is considered that the 75-mm. gun now in course of development by the Ordnance Department with 45° traverse, will meet all requirements.

9. *Co-operation of artillery and tanks.*—The authorities are of opinion that artillery can best support tanks by laying a smoke screen in front of them and blinding hostile observation. Not much faith is placed in counter-battery work, and it is thought that the tank itself can deal with the anti-tank gun if it can get within striking distance.

10. *Tactical employment.*—The ideas as regards tactical employment of tanks appear to be faulty. The tendency seems to be to attach single tanks, or pairs of them, to companies and

battalions as an auxiliary arm to assist them in their ordinary rule of progress under fire, thus dissipating the power of the tank arm on, so to speak, minor ventures, rather than concentrating it under the Higher Command for use on special occasions.

It is true that the importance of a tank reserve is recognized, but there is a distinct tendency to fritter away a considerable part of the available power piecemeal.

11. *General.*--The U.S.A. appear to be endeavouring to develop one type of tank with sufficient speed, protection, power of armament and lightness of weight (15 tons or less) to meet all requirements.

There are many who consider that this is unattainable and that it will be necessary to have two types—a medium and light. There are others who believe that the correct line of development lies in a “cross-country” vehicle, with a chassis which can be used for either military or commercial purposes. This school maintains that an armoured body of suitable type can easily be converted into a formidable tank, and that on account of the great commercial demand large numbers will be available in emergency.

In the meantime the authorities are concentrating on a type of 15 tons or less, with the possibility of a tank of 5 tons, which on occasion can be transported on a truck, being required.

As compared to ourselves, it appears that the U.S.A. are considerably behind us in tank development, and it is believed that they recognize this and are very anxious to get hold of our tank programme. The general opinion out here seems to be that in development, equipment and tank knowledge we are the leading nation at the present time.

POLAND.

RE-ORGANIZATION OF THE POLISH CAVALRY.

A complete re-organization of the Polish cavalry has recently been reported from Warsaw.

The most important change is the introduction of the cavalry division, the highest formation up to now having been a brigade. It is presumed that this step has been taken in view of the fact that the cavalry of Poland's most possible enemy in any war in the near future has a divisional organization; the existence of

the higher formation in peace time should facilitate the employment of the Polish cavalry mobilization on a sufficiently large scale to meet the threat of extensive cavalry raids.

Another noticeable alteration is the abolition of the divisional cavalry unit as such. Up till now there have been 10 regiments of mounted rifles which were allotted to the 10 military districts into which Poland is divided. These mounted rifle regiments provided each infantry division with a squadron which acted as divisional cavalry. Under the new organization the mounted regiments are given the same establishment as ordinary cavalry regiments and are incorporated with the other cavalry regiments into cavalry divisions or independent cavalry brigades as the case may be. The mounted rifle regiments, however, retain their names and numbers.

Hitherto the cavalry has been organized into 10 brigades of 3 regiments each, plus 10 regiments of mounted rifles, making a total of 40 cavalry regiments. Under the new organization the total number of cavalry regiments remains the same but they are now grouped into 4 cavalry divisions and 5 independent cavalry brigades. Each cavalry division contains 3 cavalry brigades, each of 2 regiments; each of the 5 independent cavalry brigades, contains 3 regiments, with the exception of the 5th independent cavalry brigade, which contains 4 regiments.

As regards artillery, each cavalry division has 2 groups of horse artillery each of 3 batteries; the independent cavalry brigade has one similar group allotted to it.

Summary showing re-organization of the Arm.

Old organization—

10 cavalry brigades of 3 regiments.

10 regiments of mounted rifles.

New organization—

4 cavalry divisions of 3 brigades of 2 regiments.

5 independent cavalry brigades of 3 regiments (except for Independent brigade which has 4 regiments).

UMPIRING.

General Notes.

In this and a subsequent article it is proposed to examine in some detail the system of umpiring, both ground and air, now being developed in the French army.

Two factors have led to radical modifications in post-war methods of manœuvre and fighting and have necessitated a corresponding revision in the system of umpiring. These are :—

- (a) The “overwhelming” fire-power of modern weapons, for which the French in particular have a great respect.
- (b) The introduction of new arms and services or the development of existing ones, such as Air Force, Tanks, Communications and Mechanical Transport.

These two factors have made the value of manœuvres more than ever dependent upon a sound system of umpiring, such as will ensure that operations develop with a due regard for realities and within the sphere of probabilities.

It was on this basis that the French General Staff drew up their post-war provisional instructions for umpiring, and these were tried out first at the Coetquidan manœuvres in 1922 as a result of which they were redrafted and again tested in the Nancy manœuvres of this year, particularly in regard to the umpiring of air operations.

The test of these instructions is that “fire is the dominant factor on the battlefield,” and great stress is laid on the necessity of bringing this home to all taking part in tactical exercises in order to avoid unrealities and false conclusions ; this applies as much to one’s own fire effect as to that of the enemy.

It is further taken for granted that units and formations up to and including the division will always fight “encadre,” that is to say, with other units and formations on their flanks.

As regards fire effect, the difficulty of representing it during training is much greater than it was before the war owing to increase in material, range and mobility ; in the case of small units, such as battalions and companies, it can be done mainly by means of flags, rockets, smoke grenades and light signals, though it is hoped to improve these mechanical methods as a result of experiment and experience. The principal objection to them, and one which it is very difficult to overcome, is that they indicate too obviously the source of fire and thus ignore one of the great problems of the real battlefield.

But these methods are not practical for the training of larger units, since they tend to cramp manœuvre, are too rigid and require too large an expenditure in personnel and material ; the only resort in this case is to umpiring. To enable the umpires to represent fire effect to the troops, the former are provided with maps

showing the hostile gun positions and the ground covered by hostile artillery and machine gun fire. On these maps are also shown any special difficulties likely to be met with in the advance due to hostile fire and, as far as ground and cover are concerned, the best method for avoiding them.

In addition all umpires are kept constantly informed of the situation on both sides by means of a very carefully organized system of communications (see Section III and Appendix I), which also enables the chief umpire to issue rapidly his orders and instructions based on the changing conditions of the operations. He can thus control the situation and bring out the required lessons.

By these means the umpires know the fire plan of both forces and can give decisions accordingly.

The increased range of artillery and the employment of aeroplanes have resulted in a great extension of fire effect behind the front line, and for this reason it is now necessary to extend the umpiring organization to a corresponding depth to include rearward services.

The general instructions sum up the aim of umpiring as follows :—

- (a) As regards the troops and services, to point the picture of fire effect and make deductions from it, to emphasize the importance of liaison between the various arms and to assist in the training of the troops.
- (b) As regards the director of the operations, to keep him "au fait" with developments and to ensure that these latter are logical and in conformity with the instruction which it is sought to give.

These aims can be realized only by a sound system of umpiring, in which all ranks have confidence, and which does not discourage initiative and energy by too frequent and unnecessary interference.

For the training of small units, battalions and companies, the duties of director and umpire are usually combined, officers of other arms being attached as necessary to answer for fire effect ; but in the training of larger units and formations, umpiring forms a separate organization, though the chief umpire works under the orders of the director of the exercise.

(ii) *Umpiring Personnel.*

Umpiring personnel consists of :—

- (a) Senior officers, who are also responsible for assisting the director in the instruction of the troops; in the case of important exercises, these officers are distributed in groups, a definite task being allotted to each group. Examples of these tasks are :—To control operations in a particular area, as, for instance, the zone of infantry fire; to follow the work of one or more units in depth, the usual method in the case of reserve formations; to work with a particular arm or service, *i.e.*, aircraft, tanks, signal units.
- (b) Personnel for liaison work and consisting of regimental officers or even non-commissioned officers, whose duty it is to keep the umpires informed of the situation in the unit with which they are working.
- (c) Officers of the directing staff who assist the chief umpire by studying the orders issued by commanders and the information made available, keeping the situation of the troops up-to-date and preparing his decisions and reports.

(iii) *Communications for use of Umpires.*

In all large scale exercises a special system of communications is provided for the use of the umpires, consisting of telephone, telegraph, wireless or visual, despatch riders and pigeon; wireless is, however, sparingly used, as it is apt to jam that of the troops; a balloon is also sometimes allotted for the use of umpires as an observation post for the collection of information and also as a means of sending signals. A diagram to illustrate the system of communication and the lay-out of umpires for a divisional exercise is given in Appendix I, each part being connected by telephone, supplemented by other means of communication, so that all umpires are in touch with each other and with the chief umpire.

(iv) *Method of Umpiring.*

The work of an umpire is divided into three successive stages :—

- (a) To provide information, usually in the form of an intelligence summary particularly as regards fire effect, which would be known to the troops automatically in war, so that they may be able to appreciate the situation correctly.

- (b) Having provided this information, to note how the troops set about the attainment of their objective.
- (c) To point out to the troops the lessons to be learnt from the action taken and the probable results which would have been obtained in war.

In principle, intelligence summaries and all important decisions of the umpires are given in writing.

The method of umpiring varies according to the role allotted and is dealt with under the following headings:—

- (1) With troops or administrative services in the zone of infantry fire.
 - (2) With troops or administrative services behind this zone.
 - (3) On the chain of command for the purpose of noting the effect of orders issued or of unexpected situations arising.
 - (4) Air umpiring (*arbitrage aérien*).
 - (5) On the system of communication.
- (1) In the zone of infantry fire.

It is laid down that only such information should be given to the troops as they would be likely to possess in reality and that care should be taken to avoid providing them with data which they ought to be able to obtain for themselves; thus an umpire with an artillery unit would not supply information as to the position of the infantry which it is covering.

At Appendix II is given a list of points on which the umpire may be required to provide information.

Umpires are instructed to avoid interfering personally during the progress of an operation, but to confine themselves to observation from a favourable point and to the collection of information from their liaison personnel. When the operation is finished or when it is necessary to stop it, the umpire does so by issuing a decision, which in the case of an attack generally involves temporarily holding up the advance.

It is not usual to make actual casualties; this has been given up owing to the confusion it caused; but commanders are informed by the umpires of the percentage of loss suffered by their units, *i.e.*, the reduction in their fighting value; it is then up to the commander concerned to use his judgment as regards further action, the employment of reserves, etc., and on this action the umpires base their decisions. This system has the advantage not only of avoiding confusion, but also of developing judgment and decision.

Large units are not ordered to retire owing to the fatigue and waste of effort involved.

(2) In rear of the zone of infantry fire.

The role of the umpire in this case is comparatively simple and consist mainly in noting whether disposition are taken in accordance with the development of operations and, where necessary, in anticipation of orders, and whether liaison is good with other units and formations.

Umpires in this zone are few but require quick means of transport; they are usually accompanied by representatives of the various administrative services (supply, medical, etc.). A list of points on which an umpire may be required to give information to troops in this zone is also contained in Appendix II.

Types of penalties inflicted by umpires in this area are, ordering a battery to cease fire, holding up the advance of a unit which has ignored the effects of hostile artillery fire, or delaying the ammunition supply to the guns. The means by which the umpires represent fire effect have been dealt with in Section I.

(3) On the chain of command.

Umpiring here is mainly directed towards testing command and staff work and the liaison between the various arms; the method adopted is to follow and time an order from its origin to its execution or to watch the re-action of an unexpected situation through the various echelons of command; this work is usually done by the chief umpire or by specially selected senior officers, since it requires considerable tact and a thorough knowledge of staff work. Criticisms are given verbally and on the spot, whilst important cases are referred to the director.

(4) Air umpiring.

This is so important in modern peace training and involves so many special considerations that it will be dealt with in detail in a subsequent article in the November number of the Monthly Intelligence Summary.

It is governed by three factors :—

The speed of the aeroplane.

The altitude of the aeroplane.

The difficulty of communicating rapidly by existing methods with an aeroplane in flight.

Scouting and bombing machines are umpired from the air, Artillery and reconnaissance machines are normally umpired from the ground.

This ground umpiring is worked through the following organization :—

A chief air umpire assisted by ground observers suitably distributed.

Anti-aircraft defence units.

Liaison personnel at the landing grounds.

Officers working under the chief air umpire for the purpose of communicating his decisions to the aeroplanes in flight by means of ground strips.

The chief air umpire is the only person who issues decisions.

Types of decisions are, an artillery aeroplane attacked by three hostile scouts and destroyed; an aeroplane photographing at too low an altitude and the photographs not allowed to be utilized.

Decisions are communicated either by ground strips to an aeroplane in flight or by telephone after it has landed.

(5) On the system of communication.

The three main points for umpiring here are :—

(a) Organization.

(b) Tactical employment.

(c) Technical working.

The chief umpire examines and criticises organization.

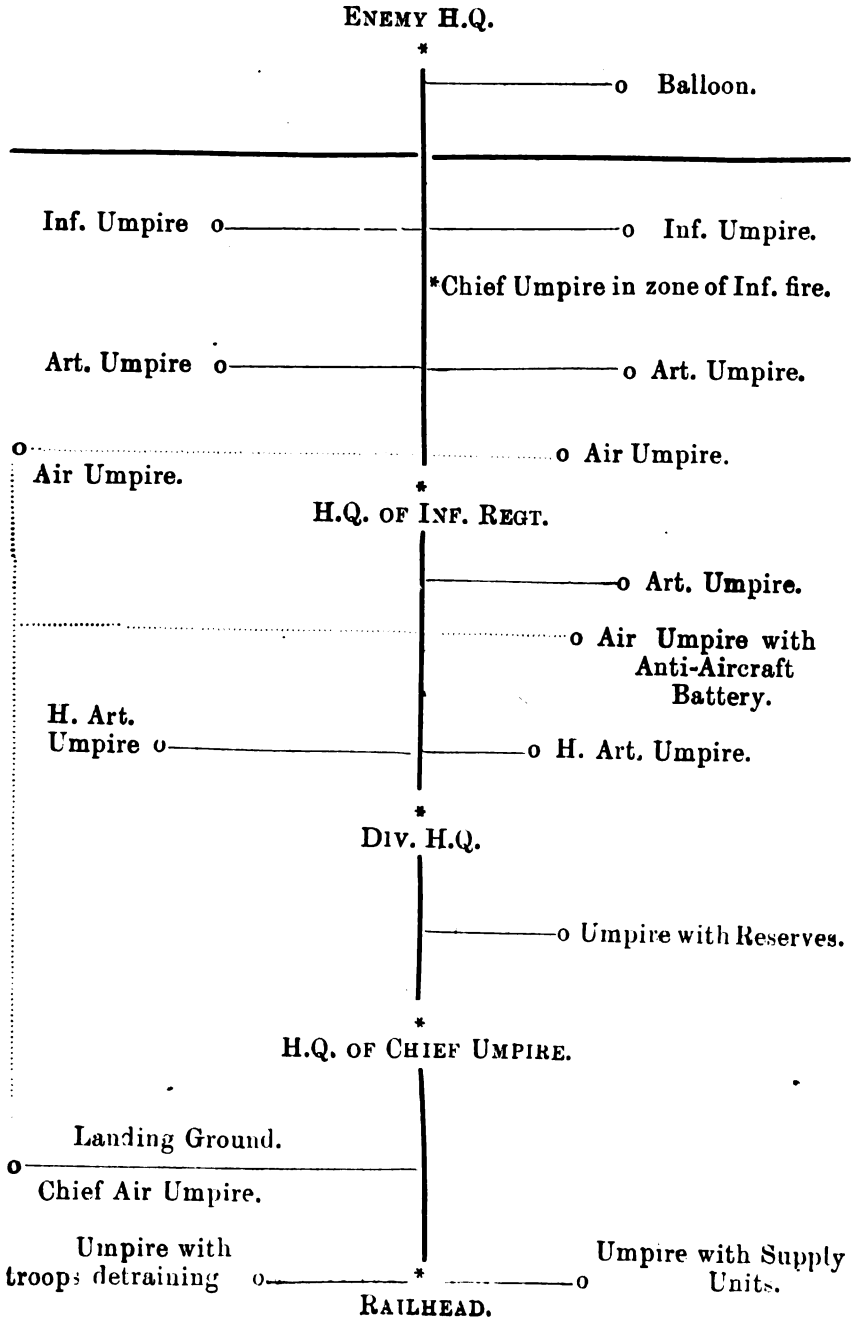
Staff officers control the tactical employment to ensure the correct use of the various means of communication and the form which orders and messages are sent. Messages are frequently intercepted and, when necessary, are passed to the chief umpire, who issues a decision accordingly. Thus, if the position of a battle H.Q. is sent in clear by wireless, the chief umpire may rule that it has been heavily bombarded and possibly rendered untenable.

It is perhaps interesting to note that carrier pigeons are used to a considerable extent by umpires in order to send information to the chief umpire.

APPENDIX I.

SYSTEM OF UMPIRING FOR A DIVISIONAL EXERCISE, ALL UMPIRES BEING IN COMMUNICATION AS SHOWN.

(Note.—Assistant personnel and personnel for communications are not shown.)



APPENDIX II.**I.—UMPIRING OF THE ZONE OF INFANTRY FIRE.****A.—NATURE OF INFORMATION TO BE GIVEN TO THE TROOPS.***To the Infantry.*

Nature and importance of the covering artillery fire which the infantry would be able to see.

Nature and importance of hostile artillery fire to which the infantry would be exposed.

Nature of the hostile infantry resistance, particularly the fire of automatic weapons, which the advance would come up against.

Action of hostile aircraft to which the infantry would be exposed.

To the Artillery.

Nature and importance of the enemy counter-battery fire.

Nature and importance of hostile artillery fire directed against their own infantry which they could see from their observation posts.

Movements of enemy infantry which they could see (for instance, counter-attacks, visible from artillery observation posts).

The action of enemy aircraft against the batteries.

B.—POINTS TO BE NOTED BY THE UMPIRE IN THE ATTACK.

Value of the artillery preparation for the attack.

The measures taken by infantry to reduce enemy resistance.

Precautions taken to conceal movements from aerial observation.

Co-ordination of effort between the different arms at the commencement of and during the attack.

Achievement of surprise.

Rapid consolidation of ground captured.

Measures taken to deal with counter-attacks.

In the Defence.

Organisation of the defensive system of fire.

Accuracy obtained in the opening of fire, especially artillery barrages.

Adequacy of observation in the defence.

Care with which a defensive position is camouflaged to escape aerial observation.

The distribution of the troops.

Rôle and employment of reserves.

Timing, direction and conduct of counter-attacks.

II.—UMPIRING IN REAR OF THE ZONE OF INFANTRY FIRE.

A.—NATURE OF INFORMATION TO BE PROVIDED BY THE UMPIRE IN THIS ZONE.

This information is concerned more particularly with the effect of hostile fire.

For Heavy Artillery Units.

Hostile counter-battery fire.

Enemy artillery fire against objectives visible from the heavy artillery observation posts.

Hostile aircraft action against the batteries.

In cases where there is only a skeleton or a flagged enemy, enemy battery positions which would be detected by the heavy artillery, either from observation posts (artillery ground observation posts or sound ranging posts) or from aerial observation.

For the Reserves either Halted or in Movement.

Zones beaten by hostile artillery fire.

Zones seen by enemy kite balloons.

Hostile artillery fire directed against the reserves.

The action of hostile aircraft directed against the Reserves.

For the Supply and Administrative Services.

Information similar to that given in II above.

B.—POINTS TO BE NOTED BY THE UMPIRE.

The points to which the umpires in this zone should direct their attention are as follows :—

Heavy Artillery.

Choice of battery positions.

Care with which these are concealed from aerial observation (aircraft and kite balloons).

The speed with which orders are executed,

Camouflage.

Accuracy of calculations.

The adequacy of the information which the heavy artillery possesses as to the general situation, and particularly the liaison between the heavy artillery and neighbouring infantry and field artillery units.

The Reserves. •

The care with which movements are carried out and halting places selected so as to escape the observation of hostile aircraft.

The care with which routes and halting places are selected with reference to hostile artillery fire.

Steps taken by the reserves to keep in touch with the troops in front and with the situation generally.

Reconnaissance and the dispositions taken in anticipation of orders based on this reconnaissance and the knowledge of the general situation.

Supply and Administrative Services.

Measures taken to avoid hostile fire (artillery and aircraft).

The working of the supply and administrative services.

APPENDIX III.

**NOTES ON THE SPECIAL INSTRUCTIONS ISSUED BY THE
CHIEF UMPIRE FOR THE 20TH ARMY CORPS
EXERCISES IN 1924.**

1. Working directly under chief umpire were the following :—

(a) A staff comprising one chief of staff and three bureaux :—

1st bureau.—Organization of umpiring matériel.

2nd „ —Collection and transmission of information.

3rd „ —Umpiring and the preparation of umpiring orders and instructions.

(b) Attached to this staff were the following :—

A colonel as chief artillery umpire, with the necessary assistants.

A colonel as chief umpire of communications, with the assistants.

An officer to umpire the motor transport service.

An officer to represent the aerial and anti-aircraft defence umpiring at the headquarters of the chief umpire.

Liaison personnel for attachment to formations.

(c) A certain number of umpire groups each under a colonel and allotted definite tasks such as the zone of infantry fire, the chain of command, etc.

(d) Reserve personnel at the headquarters of the chief umpire to provide reliefs, undertake special missions or reinforce the umpires at certain points, as necessary.

(e) Each colonel acting as chief umpire as in (b) above, or in charge of a group as in (c), had a field officer as his assistant who belonged to a different arm of the service.

2. The following were the more important of the rules issued for the guidance of umpires in making decisions :—

The object to be arrived at is to provide those requiring it with such information as they would be able to get in war and in the same form as in war; the same information may be sent in different forms according to the recipient.

Do not allow a unit to advance without making proper use of its resources or without knowing how it is being supported.

Do not halt a unit for a fixed period, but only for so long as is required for it to take the measures necessary to justify a further advance.

Do not interfere to alter a situation, but create an incident which will point the required moral.

Do not order a retirement, but a unit once halted by the umpire will only advance again with his permission; during a halt the umpire will explain the reason of it.

Do not slow down operations too much; it is obvious that on manœuvres events move faster than they do when bullets are flying, but do not, on the pretext of reality, keep the troops kicking their heels doing nothing.

Do not create casualties, but notify the commander of the percentage of loss he has suffered.

Do not create unnecessary difficulties.

3. In umpiring night marches the main points were march discipline and the action of aircraft, both friendly and hostile. For this purpose senior officers were stationed at certain points along the route during the night, whilst others visited the billeting areas by day. No halting of troops by order of an umpire was allowed.

4. Liaison personnel with the skeleton enemy were made responsible for the preparation of maps for use of the umpire on the other side, showing gun positions and lines of fire of both artillery and machine guns, *vide* Section I.

5. Carrier pigeons were the principal means of communication between umpires in back areas and the headquarters of the chief umpire.

CORRESPONDENCE.

DEAR SIR,—The article on 'Cavalry v. Armoured Cars' in the April number of our Journal (as also much else that one has read and heard) might tempt one to believe that a new problem was sprung on an unsuspecting army by the Delhi Manœuvres, whereas the question of how infantry and cavalry are to deal with armoured mechanical vehicles is as old as the introduction of the latter, has passed through the stage of heated, partisan controversy and is being carefully considered in England on every possible occasion.

It is true that the arguments, when at their height (in 1920-1921) centred around 'Cavalry v. Tanks,' simply for the reason that the greater includes the less and that, under most circumstances, the armoured car is an indifferent substitute for an efficient tank.

2. The success of the armoured cars on the Delhi Manœuvres was mainly due to the fact that they had none of their own genus to oppose them.....in this respect Blue Force was post-war, while Khaki Force was pre-war.

Contributory factors were—

(a) That in some cases, apparently, the subject of how to deal with Armoured cars, or rather how not to be dealt with by them, had been insufficiently considered. In this connection the account of the neutralizing of the Khaki Cavalry on the 16th reads curiously after the preceding article in the Journal—'Cavalry in Open Warfare.'

(b) That, in many cases, the cars were apparently impervious to shot and shell unless the umpire's mobility was greater than theirs.

3. The author does well to stress the fact that Tanks cannot take the place of cavalry until such time as they can go anywhere that a horse can—even if then. [Col. Fuller, in his lecture on Progress in the Mechanicalisation of modern armies (reproduced in the Journal of the R. U. S. I. of February 1925) says that he sees no place for cavalry in the General Staff policy, which is to build up a new army for a war of movement in which advances

of 100 miles in 24 hours will be attained, even if horses be carried in lorries. I would suggest that, in much of the terrain over which we may be called upon to operate, unless one proposes to take infantry in tracked vehicles as far as possible and then push them forward on foot (in which case one may lose more on the roundabout than is gained on the swings), the pace and length of the advance may have to be slowed down to the cavalry's capacity.]

He then points out that, however occupied, cavalry, sooner or later, will meet enemy tanks, an endoubted fact (if the enemy have any) and one for which there may be many palliatives, but there is only one remedy—Tanks.

4. If a force without tanks sets out to fight an enemy with tanks, the result can be predicted. It does not require much imagination to picture what would have happened at Delhi had the armoured cars been replaced by efficient tanks—there might have been a 'Mystery Division' instead of a 'Mystery Brigade'!

I would suggest that it is quite impossible for the smaller bodies of cavalry to be equipped to deal with Tanks, but, at the same time, Tanks, like aircraft, are an essential part of any cavalry force, and, unless they are available, such a force will be neutralized or meet with disaster should it encounter a properly equipped enemy. The composition of the French 'Division Légère' (see the Cavalry Journal of January 1925), though designed for conditions widely different to those that the Army in India is prepared for, will repay consideration.

Yours truly,

F. G. GILLIES, COLONEL.

DEAR SIR,—Reference the letter from F. G. on page 122 of the April issue of the U. S. I. of India Journal and your editorial remarks, this question is of so great importance to Cavalry Officers that I venture to offer some suggestions.

Cavalry Training, Vol. 2 (provisional devotes) Chapter 7 to the employment of Hotchkiss Guns and lays down, among other things, as follows:—

- (a) Sec. 58. 1 (f).—Its effective range is similar to that of the rifle, but the effect of automatic fire rapidly diminishes at ranges greater than 500 yds.

- (b) Sec. 60 (1).—Hotchkiss guns should be looked upon as constituting the main fire power of a cavalry regiment. By their use a heavy volume of fire can be produced.
- (c) Sec. 60 (2).—It must not be considered as a substitute for a Machine Gun.
- (d) Sec. 60 (7).—Repetition fire should be used in preference to automatic fire, except when moral effect is the principal object.
- (e) Sec. 61 (2).—Concealment and rapidity of action will be essential to success. These will usually be best obtained by the Hotchkiss gun troop dropping out under cover of the movements of the main part of their squadron, while the latter moves to a flank to attack.
- (f) Sec. 61 (3).—Hotchkiss Guns should remain with their squadrons until the last moment.
- (g) Sec. 60 (8).—It should be the object of every Hotchkiss Gunner to engage the enemy at the closest possible range.
- (h) Sec. 60 (3).—In contrast to a machine gun team they need not seek for especially good positions.

The impression gained from reading the above quotations is that, when the provisional book was issued, the authorities had no very definite idea themselves as to the rôle of these guns in a mounted attack.

It is quite possible that a good deal of the indefiniteness regarding the Hotchkiss is due to this weapon being called a gun, and that this would be greatly dispelled if it was called—what it rightly is—a Hotchkiss Rifle. I am convinced that, as long as it continues to be called a Hotchkiss gun, despite para. 60 (2) quoted above, many people will attribute to it the qualities of a Machine gun and, as long as it is incorrectly named, so long will its handling be misunderstood.

Sec. 60 (1) is obviously an error, as the main fire power of a cavalry regiment is its Vickers Troop.

Again if by their use a heavy volume of fire is to be produced sec. 60 (7) cannot be correct as regards repetition fire.

Similarly 61 (2), 61 (3), 60 (8) and 60 (3) seem to be at variance,

If one considers sec. 58 (1) and the actual facts of a mounted attack in combination with the instructions laid down in 61 (2), it is difficult to visualise a situation where it would be possible for a H. G. Troop to bring effective fire to assist the mounted attack of a regiment—the time and space problems are too intricate.

To my mind the action of the Hotchkiss Guns, when acting with a Squadron alone, and when acting with the Regiment, are entirely different.

When acting with a Squadron alone, the Hotchkiss Guns are the main fire power of the Squadron and, in a mounted attack, they must be utilised to cover it as best they can.

In the case however of a regiment, the main fire power is the Vickers Gun Troop, which is eminently suitable in every way to cover a mounted attack, whether by overhead, indirect, oblique or direct fire.

In such a case, in actual practice, any attempt to get the Hotchkiss Guns of each Squadron to assist by covering fire will usually lead to confusion—while, if all the Hotchkiss Guns of the Regiment were collected together for this purpose, it would be impossible to get them into position in time to deliver any effective fire and, in any case, I contend that this is an incorrect manner of using them.

It is unlikely in the future that a mounted attack will ever be delivered by a larger formation than a regiment and, in such an attack, it is suggested that the following would be the normal action:—

- (a) The Vickers Gun Troop will be dropped as a “pivot.”
- (b) The regiment will be manœuvred so as to “Form Line” of sabre squadrons, in such a direction as to be able to attack the enemy without masking the fire of its own Vickers Guns.
- (c) The Hotchkiss Guns will accompany their squadrons, in the first place, but, directly the command “Line will attack” is given they will reduce their pace until they are about 150 yards in rear of the “Line, remaining mounted and coming under the general control of the senior Hotchkiss Gun Troop commander of the regiment,”

The rôle of the Hotchkiss Guns being :—

1. In event of the mounted attack being successful, to come up at once and pursue the defeated enemy by fire,
or
2. To consolidate a captured position,
or
3. In event of failure of the mounted attack to come into action, form a rallying point and cover the withdrawal of the mounted portion of the regiment.

In general I am unaware if it has been suggested that the ideal fire weapon for a cavalry squadron is not an automatic firing weapon but an automatic loader. If every man was armed with an automatic loading rifle, a far more effective covering fire could be obtained from a dismounted Troop, with every short an aimed shot, than with the present Hotchkiss whose automatic fire over 500 yards is practically useless.

Yours faithfully,

C. B. DASHWOOD STRETTELL.

DEAR SIR,—In the April issue of the Journal, "Puzzled" propounds a conundrum regarding the employment of engineer troops in war. May I be permitted to suggest a two-fold answer?

Why—he asks—in view of the practical fact that engineers are invariably detailed to carry out the wiring of permanent piquets, do our Schools and Manuals persist in their theoretical teaching that engineers should *never* be used for such non-technical work which infantry, according to them, ought to be able to carry out.

The first answer is, I suggest, that the Schools and Manuals do *not* teach that engineers should *never* be used for non-technical work. Inf. Tr., Vol. II, 1921, sec. 16, says: "Engineers will *normally* only be employed on work requiring technical skill." And if "Puzzled" will turn to F. S. R., Vol. II, 1924, sec. 75(1), he will find, as one of the tasks laid down for engineers in encounter attack, "fortification of important tactical points gained by attacking troops." It would therefore not be contrary to F. S. R. if the whole of the fortification of permanent piquet positions were entrusted to engineer troops. What the Schools and Manuals do teach is that, when it is a question as to whether the limited numbers of engineers available are to be used for

technical or for non-technical work, it will nearly always be found more profitable to retain them for the technical work which is, after all, their sole *raison d'être*.

We do not take gunners from their gunnery to build piquets for the infantry; why then take engineers from their engineering, if it can be avoided? The principle is simple and logical: but its application is not rigid: the sole criterion here as elsewhere is—what will best help to win the war?

A second answer to "Puzzled's" conundrum suggests itself. It is—that wiring of permanent piquets is not, in fact, normally work which "can be carried out by non-technical troops such as infantry." There may be two reasons for this—either the soil is ordinarily such that technical tools and skill are required for fixing the wiring standards, or the infantry is not sufficiently expert in this undoubtedly infantry duty. And small blame to them if they are not, for the training of a mass of men in wiring takes more time and stores than infantry have normally at their disposal.

Probably both these factors tend to the almost universal employment of engineers for piquet wiring: and, if these factors are normal, then piquet wiring must be accepted as a normal activity of engineers in trans-frontier warfare.

Yours faithfully,
"USTAD."

DEAR SIR,—With reference to queries raised by "Pindi" on the subject of Outposts in your Correspondence Column for April 1925. I find it difficult to reconcile your reply with the teaching of F. S. R., Vol. II (1924). In particular:—

- (a) That outposts will usually be divided into piquets, supports and reserves *in order to provide depth in the defence.*

Is not the real reason for this method of distribution that by an elastic drill manœuvre (so to speak) it facilitates the rapid and methodical occupation of an outpost position as well as automatically ensuring such depth in the defence as the numerical weakness of the outposts will permit (Sec. 57 (5)).

This point seems to have been missed.

- (b) That it seems more often than not, advisable to post piquets in front of the outpost "*line of resistance.*"

Wherein F. S. R., II (1924), will you find this term used in relation to Outposts?

To deal more fully with the whole problem, I think we shall find most of our difficulties in relation to Outposts fade away when we realise that an "outpost position" is in all respects a "defensive position," organised for defence on the same principles as other defensive positions, except that the frontage is extended and the depth correspondingly restricted as compared with the normal defensive organisation. (Sec. 55 (4)).

Turning to defence, we find that in all cases a line must be selected in front of which the enemy's attack should break down under the fire of all arms (Sec. 89 (10)). This is emphasised in slightly different language in Sec. 91 (2) and Sec. 99 (3), though the latter is in respect of position warfare, and, because it is desirable to repress any tendency to regard position warfare as the normal form of warfare (Sec. 98 (2)), I will not refer further to it here.

Now, having selected this line in front of which we are going to break down the enemy's attack, I suggest we should organise in some such way as follows:—

1. A chain of localities or posts distributed according to the accidents of the ground, in positions from which they can best develop the fire power of their weapons, and mutually supporting each other by frontal, flanking or enfilade fire and covered by the fire of the longer range weapons echeloned behind them (Sec. 91 (2)).

This chain of localities corresponds to the old front line, and is garrisoned by the forward elements of the front companies.

2. If the enemy is well equipped with mechanical support we require behind this system another chain of localities or posts distributed in similar fashion, and, in addition to supporting each other, they must be capable of giving effective support across the front or flanks of the forward localities. This second chain of localities is garrisoned by the rear elements of the front companies and corresponds to the old support line.

(1) and (2) together oppose to the enemy's advance a belt, so to speak, in front of which, and throughout which, he is subjected to effective fire and, when opportunity offers to counter-attack.

3. Behind this forward system we have distributed in other localities the rear companies of the forward battalions which are local reserves under Battalion Commanders. These are normally

disposed in a series of defended posts or localities which they may be required to hold (I. T., II., 49 (11)) or to form defensive flanks or to counter-attack, etc.

Now turning back to outposts, we find that piquets correspond to the garrisons of the foremost defences in the normal defensive position (Sec. 57 (7)). That is (1) above.

Supports will be so disposed as to give depth to the positions held by the piquets (Sec. 57(8)). That is (2) above, and when the possibility of a serious attack exists, the provision of reserves in outpost defence, as in all other forms of defence, is essential. (Sec. 57 (9)). And that is (3) above.

The whole forms one system of defence (Sec. 57 (6)).

There is no need to talk about a line of resistance and that is why the term has now disappeared from F. S. regulations.

Yours faithfully,

Y. D.

(a) Yes, the division into piquets, supports and reserves, *ensures* depth in the defence.

The wording in my reply to "Pindi" did, I think, convey this impression.

(b) Yes, the term "line of resistance" is not used in the F. S. R., II (1924), as it gives the impression of linear defence as opposed to the accepted principle of defence in depth.

"Pindi," however, used the expression in his query and it was used in replying to the query.

The remainder of your letter is very sound and gives the correct reason why the term "Outpost line of resistance" has been omitted from the new F. S. R., II.

The little Sketch, Plate I, following paragraph 029 of Infantry Training, Volume II, of 1921, shows clearly that a Battalion on outpost holds a defensive position in depth.—EDITOR.

DEAR SIR,—I am acting Brigade-Major and the other day the Colonel-Commandant held an Exercise without Troops dealing with outposts.

The Outpost Commander, a very good Commanding Officer with considerable service, used the old term "Outpost line of resistance" in defining the general line he proposed to fight for

in case of attack. He was criticised by the Colonel-Commandant and told that no such term now exists, and that he must use some other expression, such as "Outpost Position".

He replied that he could not understand how he could better define what he meant to fight for, which everybody could understand, and which was of course not a rigid straight line, but a "General line in front of which it is intended to stop the enemy" (F. S. R., II, 91 (2)).

It seemed to me that there was a good deal in what he said.

Can you tell me why the expression has been definitely cut out with reference to Outposts?

ASPIRANT.

Yes, the old term "Outpost line of resistance" certainly did convey adequately the meaning of "the general line proposed to fight for in case of attack" but it gave the idea of linear defence as opposed to the accepted principle of defence in depth.

Infantry Training, Vol. II, para. 029 (5), states that though there may be many varying degrees of protection the principle of defence in depth is the same throughout.—EDITOR.

DEAR SIR,—I was discussing F. S. R., II, Sec. 47 (2), with two senior officers of my regiment the other day. I pointed out that it was difficult for the mounted patrols of the advanced guard mounted troops to be four or five miles in front of the advanced guard, for they were part of the advanced guard themselves.

The first senior officer said that it was obvious that the meaning was "four or five miles in front of the vanguard." The second senior officer entirely disagreed, saying that in that case the mounted patrols would be much too far ahead, and that there was no doubt "four or five miles in front of the main guard" was intended.

Can you help me?

SIMPLE.

In a case where mounted troops form part of an advanced guard and the country is sufficiently open for them to push well ahead, the vanguard will probably be very small. In fact the vanguard will really be the advanced guard mounted troops backed up, perhaps, by a small proportion of the other arms,

The distance four or five miles mentioned in Field Service Regulations, II, Sec. 47 (2), must vary in accordance with the ground and the situation but is intended to be measured from the main guard. —EDITOR.

DEAR SIR,— With reference to the letter of “Puzzled” in your Correspondence Column for April 1925, para. 3, I hope the following notes may be of help to him.

1. Cavalry Training, 1920, Volume II, Section 13, gives a good summary of the duties of Corps Cavalry, to which category the squadron referred to by “Puzzled” belongs. This section begins as follows:—

“The main duty of Corps Cavalry is protective reconnaissance, and will normally be carried out in connection with advanced guard, etc.”

Para. 2:—

“When the country is open, Corps Cavalry attached to advanced, etc., guards, may be expected to search the ground up to a distance of 4 or 5 miles from the main-body” and (*vide* C. T. II, Plate 1) on a frontage of up to 4,000 yards.

2. Turn now to F. S. R., II (1924), section 45 (3) which was written four years later than C. T. II:—

“An advanced guard is divided into advanced guard mounted troops, vanguard and main guard.”

and later—

“The action of the bulk of the advanced guard mounted troops will be controlled by the advanced guard Commander.”

The loose wording of this last sentence is unfortunate, for if they *are* advanced guard mounted troops, they are under the orders of the Advanced Guard Commander. In any case the intention must be that mounted troops employed on purely protective duties with an advanced guard (*i.e.*, whose movements are dependent on the advance guard) shall be under the advanced guard Commander, while mounted troops employed on special missions (*i.e.*, whose movements are *not* dependent on the advanced guard) will normally be under the Force Commander who, however, may delegate the duty of sending them out and giving them orders to the Officer Commanding advanced guard mounted troops.

3. Now this duty of covering the advance is very simple so long as no enemy is met with, and it might be done with one troop extended as three sections (or patrols), or less as required.

In the face of opposition, however, even if only of hostile patrols, this duty becomes exceedingly difficult, and our reconnoitring patrols and detachments will then require close support, to enable the advance to be maintained. Also the work of these patrols, etc., is dangerous and exhausting, so if protection (including protective reconnaissance) is considered the most important duty for the available mounted troops, it is obvious that the fewest possible detachments should be made for any other duties.

4. The conclusion, therefore, is that—

- (a) The minimum possible number of mounted men must be allotted for orderly work, etc.
- (b) All the remainder except such as are essential for special missions, should be allotted to protective reconnaissance, say in this case the advanced guard.
- (c) The Advanced Guard Commander will then keep the minimum number of mounted troops—say 1 section with his Headquarters for inter-communication with his mounted troops and will allot all the remainder to move ahead of his vanguard.

5. The Squadron Commander with his whole squadron, less those allotted for orderly work and special missions, will then carry out the protective duties allotted him by the Advanced Guard Commander, and will move by bounds ahead of the vanguard. Once in touch with the enemy he may move according to circumstances on a two or three troop front; each troop sending forward its patrol or patrols, usually a section strong each, and each section sending forward pairs of scouts as required. These dispositions may be altered at the end of each bound. The Advanced Guard Commander is, of course, kept fully informed of his progress by the Squadron Commander, who regulates his movements by those of the advanced guard.

Yours faithfully,

CROSS-WORD.

DEAR SIR,—Much has already been written for and against the Lewis Gun in frontier warfare but I would like to add a few lines from the point of view of an ordinary regimental officer.

That the Lewis Gun, or some other light automatic weapon, has come to stay as part of the armament of an Infantry Battalion there is no doubt whatever. The possibility of the abolition

of this very effective weapon for units serving across the border of the North-West Frontier, or anywhere else in mountainous country, would appear to be inconceivably remote. The solution of the problem as to how to make the best use of the light automatic in Frontier Warfare is therefore all that requires consideration.

There are two schools of thought on this subject. Some advocate its use, in accordance with our manuals, as a platoon weapon, whilst others recommend grouping the Lewis Guns of a company in a separate unit under its own commander. The advantages of each system have already been discussed at considerable length by various writers but no solution has so far been arrived at; nor does it seem in the least likely that the holders of such diverse opinions will ever come to an amicable agreement on the subject.

The principle of keeping the Lewis Gun as a purely platoon weapon in training Infantry battalions for war in general must obviously be adhered to, but is there any real reason why all units who are serving their two years trans-border should rigidly adhere to this principle in all the operations they are called upon to perform as "Wardens of the marches"?

Though not in general principles, yet in many details frontier warfare differs considerably from other forms of warfare and, as previous writers have said, "special circumstances call for special measures."

Definitely to rule out the use of grouped Lewis Guns for units serving on the frontier would in my opinion be wrong.

I suggest that the only way of getting the best fighting value out of a battalion is to leave a question like this to the discretion of the Battalion Commander. The latter would of course consult his Brigade Commander if he wished to make any drastic change in his methods with regard to Lewis Guns and how to use them. In Waziristan, which is the area most affected at the present time, it is (or should be) every officer's ambition to kill Mahsuds; the only means of persuasion that the Mahsud understands.

If, therefore, a Battalion Commander can convince his Brigadier that he can kill more Mahsuds by grouping his Lewis Guns, I am quite sure that the Brigade Commander in question will be willing to allow him to try the experiment.

"A Company Commander," who wrote a previous article on the subject, has evidently tried grouping his Lewis Guns with considerable success in frontier warfare. Why should not others do likewise!

Let us remember that "Special circumstances require special measures" and that the use of Lewis Guns, can well be considered amongst the latter.

Let us have a little more elasticity of thought and training on the frontier and I feel that all will be well with "Lewis Guns across the bloody border."

Yours, etc.,

A REGIMENTAL OFFICER.

REVIEWS.

History of the Great War: Based on Official Documents. The Campaign in Mesopotamia, 1914—18, Vol. II. BY BRIGADIER-GENERAL F. J. MOBERLY, C.B., C.S.I., D.S.O. (London: Published by His Majesty's Stationery Office, 1924. Price £1 1s. net.)

General.—This volume, which comprises 595 pages, 14 chapters and 23 appendices, deals with the period from October 1915 to the fall of Kut on the 29th April 1916. It is fully up to the high standard of Volume I, and Brigadier-General Moberly deserves the heartiest congratulations on having treated his difficult subject in so clear and masterly a manner. He has given us an extremely valuable book, which is well arranged, always readable and interesting, and never dull.

The Campaign in Mesopotamia is one of particular interest for India and the Indian Army. It is full of the most important lessons, tactical, strategical, administrative, financial and political. Volume I dealt with a period of almost uniform success and good fortune. Volume II tells a deplorable story, in some ways one of the most deplorable in our military history, but nevertheless, in spite of many a failure and repulse, leaves the reader with a higher opinion than ever of the fighting power of British and Indian troops.

The Value of Criticism.—The author has adhered to his policy of abstaining from criticism, which is perfectly correct in an official history, but somewhat reduces the value of the book to the student of military history. The soldier learns by study and practical experience, and lessons are driven home far more clearly by failures than by successes; it is his duty to probe into the causes of failure, and he is assisted in this task by fair and judicious criticism of the mistakes committed by the various commanders. So, while General Moberly's volume is invaluable as a history and in the completeness of its documentation, the military student is advised to turn to other books for criticism and more vivid details, *e.g.*, to General Townshend's "My Campaign in Mesopotamia," Candler's "The Long Road to Baghdad" and to various writings by General Bird, *e.g.*, "A Chapter of

Misfortunes," and his descriptions of several of the more important battles; but he should undoubtedly base his research on a close study of this admirable official history.

Criticism inevitably invites controversy, and military commanders, like statesmen or politicians, are only human when they refuse to admit that they have made mistakes. And yet all the greatest commanders made bad mistakes, and Napoleon's dictum on the subject is well known. We British are rather apt to condemn a general for his mistakes, and arm-chair critics are prone to criticise the strategical and tactical decisions and actions of distinguished soldiers, without taking into sufficient consideration their many difficulties, *e.g.*, climatic, transport, physical weariness and mental strain, lack of reliable information. But we shall never learn unless we study deeply and criticise mistakes, and the writer of these pages—from his arm-chair—hopes that his criticisms may be accepted in that spirit.

General Moberly has marshalled his facts well and clearly, and his book contains practically all the necessary information. To the student of war, however, the salt of criticism is necessary to make the dish palatable, and without this criticism, much of the material, however poignantly interesting, is apt to be indigestible. But this is not the fault of the official historian, who presents his case with all the available facts, and leaves the reader to form his own conclusions.

One thing stands out throughout the book, and is above all criticism. That is the magnificent fighting of the troops, both British and Indian. Although this volume is mainly a record of failure, it is not one of defeat by superior troops or by superior leadership, but by distances, climate, mud and water, difficulties of transport, etc. It is a splendid record of self-sacrifice, discipline, determination, camaraderie between British and Indians, between officers and men, and of heroism by all ranks. So, although it is impossible to read this book without a feeling of deep regret for our failures, there is the consolation that our troops fought magnificently, and the knowledge that final victory was to be theirs—though not, it is true, within the pages of this volume.

The Decision to advance on Baghdad.—In the first chapter, General Moberly reviews, ably and dispassionately, the causes and discussions that led to the decision to advance on Baghdad. Although no attempt is made to apportion the blame for what was undoubtedly a wrong decision, the following points emerge:—

- (a) Our numerous and constant successes, partly gained over inferior troops, had induced a feeling perhaps of over-confidence in our ability to defeat the Turks under all conditions.
- (b) It was the duty of G. H.Q., Mesopotamian Field Force, to work out the pros and cons of the advance on Baghdad, taking into full consideration all the relevant factors, *e.g.*, the strength of the enemy and his possible reinforcement; Townshend's strength, probable casualties and medical arrangements; the supply and transport facilities for a greatly lengthened L. of C., the arrival of our reinforcements and their transport arrangements.

It is clear that these questions were treated with undue optimism. The attempt merely to inflict a severe defeat on the Turks would have been a bold move, only justifiable if a success was badly needed. But the problem was not merely that of defeating the Turkish army at Ctesiphon, but also of taking and holding Baghdad. Unless the Turkish force at Ctesiphon had been virtually annihilated, it is difficult to see how we could have held Baghdad, with our slender resources in men and transport. Our transport was in reality far too inadequate to justify an advance to Baghdad, especially in view of the immediate necessity that must arise for the moving up of reinforcements.

- (c) General Nixon refused to believe his Intelligence reports re the arrival of Turkish reinforcements, though they came from various sources. He should at least have given them credit for being partially true. No allowance was made for the superior fighting value and morals of the Anatolian reinforcements, when they arrived, as compared with the Arab troops. It is true that we had already met Anatolian troops, both at Nasariyeh and Es Sinn, and in both cases had inflicted a severe defeat upon them.
- (d) General Townshend himself believed, and actually gave his opinion, that the march on Baghdad required two divisions, one to attack and one to support.
- (e) The operations were controlled, or at all events influenced, by too many different authorities, *i.e.*, the War Office, India Office, Government of India, and also by the

Commander-in-Chief in India, and by Sir John Nixon. There must be only one responsible authority in war, to whom the Commander of a force must apply for direction as regards policy, and for all the personnel and material that he requires.

- (f) The advance to Baghdad was sanctioned mainly for political reasons, and was in no way justified by military consideration. Once a campaign has been launched, it is suicidal to allow political considerations to over-ride military essentials.

General Moberly shows very clearly how strong the political reasons for the capture of Baghdad were, or were thought to be, at this time. But, however strong they were, they did not justify the risk taken, and our continued advance was thoroughly unsound from a military point of view. Mesopotamia was a secondary theatre of war, and an offensive campaign was bound to involve the employment of greater resources than those used by the enemy.

- (g) Undue reliance was placed on Russian co-operation, the efficacy of which was always doubtful.
- (h) Finally, to quote Field Marshal Sir William Robertson, the main fault was that "In general, the operations were allowed in 1915, to develop without proper regard to the vital questions of supply and maintenance." In fact, we were encouraged by success after success to push on too far and too rapidly, and our means of transportation were not increased in proportion. The lure of Baghdad caused us to lose sight of the difficulties and dangers of the advance, and we drifted into a very big campaign without realising where we were going.

The Battle of Ctesiphon and the Retreat to Kut.—Chapters XIV, XV and XVI deal with the advance to Ctesiphon, the Battle of Ctesiphon, and General Townshend's subsequent retreat to Kut between 25th November and 3rd December.

The importance of Major Reilly's capture by the Turks on the 31st November, after he had, in the course of his air reconnaissance, recognised the arrival of Turkish reinforcements, is rightly emphasised; had he returned with his information, the

course of the battle might have been quite different : Townshend would probably have fought, but he would certainly have altered his dispositions.

The intelligence on both sides seems to have been remarkably defective at the battle of Ctesiphon; on our side, mainly owing to our long advance, the failure to take prisoners, and the absence of a sufficient number of aeroplanes; the Turkish intelligence was even worse, and although operating in their own country, their accounts state that they were entirely without maps. Personal reconnoissance seems to have been somewhat inadequate.

Colonel (afterwards Lient.-Genl.) S. H. Climo's loss, as the result of three wounds, was, in General Townshend's own words, "not only a great loss, but a disaster."

The troops fought splendidly, beat off all counter-attacks, and remained victors of a hard-fought battle against superior numbers. But our losses were very heavy, totalling over 4,500, which was far in excess of the number for which our medical arrangements were prepared: we lost nearly half our British officers, and over one-third of our combatant troops.

Four weeks British brigades fought and beat 4 Turkish divisions, one of the latter a strong, fresh formation of crack Anatolian troops; and this victory was gained in spite of the fact that the Turks were holding strong entrenched positions, which they had been preparing for many weeks. But we had no reserves, and our tactical victory was turned into a strategical defeat.

General Moberly sums up the battle of Ctesiphon in the following words:—"Thus ended the battle of Ctesiphon, where the number of occasions on which the respective commanders took important decisions on incorrect intelligence was exceptional. Whether the result might have been otherwise, if either or both of the commanders had been in possession of more accurate information, is a question for the military student to discuss. As it was the dearly bought tactical success of the British was to resolve itself into a strategical defeat with far-reaching results; and the magnificent gallantry displayed by British and Indian officers and men did not achieve the success it deserved."

The retreat from Ctesiphon to Kut was on the whole well carried out, though the rearguard work does not seem to have been good; the action of the cavalry appears to have been weak and inadequate. The surprise of our force at Umm at Tubul on the 1st December shows that efficient protection of the force was

lacking; on the other hand, the Turks were evidently more surprised than our own force, and from the Turkish accounts it appears possible that an attack by our troops might have inflicted an important defeat on the enemy; in fact 3 of the 4 enemy divisions were panic-stricken and, according to the Turkish accounts, totally disorganised by our artillery fire. But General Melliss' Brigade had been detached, and our force was too weak for any such action to have been contemplated by General Townshend.

The "Emergency Force."—We read that, on the 25th October, immediately after the advance on Baghdad had been sanctioned, an "Emergency Force" of two infantry brigades, two cavalry regiments and one brigade of artillery had been mobilised in India. Lieutenant-General Sir Percy Lake, then Chief of the General Staff at Army Headquarters, India, had recommended the immediate despatch of this force to Mesopotamia, and if his advice had been followed, all might have been well. But the paralysing fear of the Indian Government for their North-West Frontier delayed the move, and this reinforcement, which, sent a month earlier, might have saved Townshend, did not leave India until December.

The Policy of the Government of India.—It is interesting to examine the policy of the Indian Government at this time, and General Moberly shows us very clearly what was in their mind. Throughout the book we see their nervousness for the safety of the North-West Frontier, and their fear lest our so-called "independent" tribes might break out into rebellion against us. The danger from the Afghans was not great: the Amir Habibullah was a wise statesman, and the value of the Afghan army was not sufficiently high to cause serious anxiety.

Our own tribesmen, *i.e.*, those on our side of the Durand Line, Wazirs, Mahsuds, Orakzais, Afridis, Mohmands, Bajauris, Swatis and Banerwals, constituted the real danger. The possibility of an attack by these large numbers of well armed men and good fighters, perhaps aided by Afghan tribesmen, paralysed our action, and caused us the most serious difficulty, as will always be the case, as long as we allow large numbers of armed men within the frontier of India.

Although the Durand Line had been fixed in 1893, we had, unlike the Amir Abdur Rahman, and unlike the Russians in Turkistan shrunk from our manifest duty of subduing our tribesmen

up to the Durand Line, and bringing them under our administration. We had refused to face our commitments and necessary expenditure, and, instead of advancing to our frontier, at all events as far north as the Kabul River, we had allowed our tribesmen to arm themselves, to establish arms factories wherever they pleased, even on the main lateral road of communication along the frontier, and to become a real and serious military menace.

This danger was evident throughout the long years of the Great War, and was a source of constant pre-occupation and anxiety to the Government of India and to Army Headquarters. In March 1916, over 19 months after the outbreak of war, Lord Hardinge informed Mr. Austen Chamberlain, the Secretary of State for India, that the Commander-in-Chief had been so busy over his duties regarding the defence of India, that he had had no time to go to Bombay to inspect the port arrangements at that place. How bitterly Lord Hardinge and Sir Beauchamp Duff, Lord Chelmsford and Sir Charles Munro must have regretted the unfortunate policy of former Governments: a policy based, it is true, on rigid economy due to a constant and praiseworthy solicitude for the welfare of the Indian people, but certain to prove costly and dangerous in the long run.

It is of interest to consider what might have been the military policy of the Indian Government had there been no possible danger from our frontier tribes. The reluctance to despatch reinforcements to other theatres of war might not have been so strong; the "Emergency Force" might have left India early in November instead of a month later: in that case Townshend might never have been invested, and Kut would certainly not have fallen, and we should have saved many millions of money and many thousands of valuable lives. Of course all this is mere idle speculation at this stage. But the fact remains that, whatever might have happened in 1915-16, it is quite certain that the danger will continue to exist, and India's military action will be seriously fettered, until we stand on the Durand Line from the Kabul River to the Arabian Sea, with disarmed tribes behind us.

Decision to hold Kut.—General Townshend, in extricating his force after the battle of Ctesiphon, and in his conduct of the retreat on Kut, showed the high soldierly qualities which had distinguished his conduct ever since he had taken command of the 6th Division. It is difficult to blame him, or that gallant

soldier Sir John Nixon either, for the decision to hold Kut, although it was undoubtedly an error of judgment.

General Townshend was influenced by three main factors: the fatigue of his troops when they reached Kut on the morning of December 3rd, the fact that a large quantity of supplies were stored in Kut, and that their loss would be difficult to replace, owing to the shortage of transport: the optimistic views held by both General Townshend and Sir John Nixon as to the early relief of the Kut force. Sir John Nixon had not yet realised the increased strength and fighting value of the Turks, nor the great difficulties that would delay the advance and impede the operations of the relieving force; moreover, he did not at first believe the Turks would attempt to invest General Townshend's force.

The story of the decision to hold Kut is told with admirable clearness and lucidity, and although the author makes no criticisms and offers no opinions, his narrative leaves no doubt that the decision was wrong. General Townshend's troops were undoubtedly very tired on the morning of December 3rd, but so were the Turks; two days' rest would have been ample, and he had 4½. The Turks did not attempt to invest Townshend's force until the evening of the 7th, by which time they themselves had presumably recovered from their fatigue, and realised that he intended to remain at Kut; he had a cavalry brigade which could have covered his further retreat. It was most regrettable that, owing to the mistake of a staff officer a telegram, dated the 2nd December, from General Nixon, leaving it open for General Townshend to abandon Kut and continue his retreat, was not shown to General Townshend until the evening of the 4th.

Indeed it seems probable that the Turks would hardly have been able to follow our force up, had Townshend withdrawn from Kut on the 5th December: they were at least as badly off for transport as our troops, and the rapidity of their advance must have made their supply question most difficult.

The loss of the Kut stores would of course have been a serious matter, but General Townshend was a deep student of military history, and knew well that this would have been a minor calamity as compared to the loss of his entire force.

Lastly, neither General Townshend nor General Nixon were fully justified in holding such optimistic views as regards the certainty of early relief. Here the blame must rest mainly on G. H. Q., Mesopotamia, who were in a far better position to gauge

the uncertainty of relief, owing to the late arrival of reinforcements and the shortage of transport, than General Townshend.

The first Phase of the Siege, December 1915.—In December the Turks made two powerful attacks on the Kut defences, but both were repulsed with heavy loss, and our troops maintained their tactical superiority over the enemy, in defence as in attack. Most of the gallant 6th Division had now spent over a year in Mesopotamia, during which period they had marched many hundreds of miles, suffered the greatest hardships from heat, cold, dust, mud and insects, often without adequate transport, baggage, tentage or rations, and always entirely without any comforts or amenities of life. And yet they had been victorious in every fight, and their moral remained as high as ever. It is very sad to think of the hardships and sufferings they had to endure, both during the long five months' siege of Kut and, still worse, in the subsequent horrors of their long captivity.

The first Phase of the Relief Operations.—As soon as Sir John Nixon realised that the advance on Baghdad had failed, he began, with characteristic energy, to organise and hasten the despatch of reinforcements to General Townshend. It was a herculean task which, following on the hard work and climatic trials of the previous nine months, proved too great a strain for General Nixon's health, which broke down early in January 1916; he was succeeded by Lieut.-General Sir Percy Lake.

Meanwhile General Aylmer, previously Adjutant-General at Army Headquarters, India, had been appointed to the command of the relief force, now designated the Tigris Corps, and reached Amara on the 12th December. His difficulties were enormous, and are well described in Chapter XIX. He had an inexperienced and inadequate staff. His troops lacked cohesion and homogeneity, and had been trained on different lines, some for fighting in France, some for Mesopotamia, and some for the North-West Frontier of India; their organisation had been extemporised, and was inevitably somewhat faulty. Many of the officers were new and inexperienced. There was a serious shortage of land transport of every description. The supply of gun ammunition was deficient. There were only two aeroplanes with the force. The bridging material was insufficient. The medical arrangements were totally inadequate. The reinforcements were unexpectedly late in arriving. The weather was bad, and the mud and absence

of roads proved a great handicap. Lastly, and most important of all, the shortage of river transport was a fatal bar to the relief of Townshend, who had counted on the early arrival of reinforcements.

Moreover, in studying General Aylmer's operations, between January 3rd and 21st, we must remember that he believed the Kut garrison had only rations enough to last until the end of January or beginning of February. Rapidity of action was in consequence considered essential.

When therefore we study the melancholy course of the relief operations, and take into consideration all these difficulties, we can but admire the energy and determination of the leaders, especially Generals Aylmer and Gorringe, and the heroic grit and bravery of the troops. For four long months, in spite of mud, cold, exposure, short rations, bad water, frequent repulses and disappointments, and enormous casualties, British and Indians fought on with magnificent tenacity and devotion. It is a dismal page in the history of the British Empire, but it is more than redeemed by the glorious achievements of the Tigris Corps.

Causes of Failure.—Where so much suffering was caused, so many gallant soldiers died in vain, and where the prestige of our arms suffered so severe a blow, it is essential to examine the reasons for our failure; it is clear that the fault did not rest with the troops, who showed themselves superior to the Turks throughout. There were many contributory causes, and General Moberly mentions them all in various places: but he does not seek to allot the blame, as did the Mesopotamia Commission.

And yet we cannot be content with a mere enumeration of the causes; we must emphasise and study them carefully if we are to avoid a repetition of such mistakes: in another campaign it may not be possible to make them good at a later stage, as was done in 1917 and 1918 by the success of Generals Maude and Marshall.

In "The Long Road to Baghdad," Candler says, "The root of the evil lay in the system. The Indian Army had been starved for years." "We have never refused Mesopotamia anything on financial grounds," said the Government of India. And it was implied that the staff at Basra was to blame for not insisting on more. But the Financial Member had so starved the army that they had lost the habit of asking. They did not believe it was any good. This view was largely borne out by the findings

of the Mesopotamia Commission, which showed clearly how badly equipped the Army in India had long been, even for minor expeditions, and how difficult it had been to obtain sufficient money for the most absolute necessities.

The critic of the soldier, whether the latter be general in the field or military administrator, must take into due consideration the force of habit. From time immemorial the Army in India had been accustomed to entering upon wars and expeditions with inadequate arms, equipment and resources. Even in the Sikh Wars of 1845—49 the Sikh artillery had been superior to ours in numbers and equipment. In 1914 the Army in India possessed no aeroplanes capable of flying. It was not the fault of the soldier; the Government of India, ever laudably mindful of the welfare of their subjects, practised the strictest economy, and it was useless for the soldier to ask for the most modern and up-to-date equipment: he was told there was no money and that he could not have it. This is not intended as a criticism of the Government of India, but as a legitimate defence of the conduct of our military leaders in the early stages of the Great War. Having been accustomed, from the date of his entry into the service, to improvisation, extreme economy and shortages of every description, the soldier may be forgiven for having failed to realise the magnitude of the resources that were necessary to gain the victory: and he may be pardoned, at least in part, for not having pitched his demands sufficiently high, and for not having insisted on early compliance with these demands.

The fighting in January 1916.—The battles of Sheikh Saad and the Wadi and the first attack on the Hanna position are well described in Chapters XX and XXI. These actions deserve close attention, and should also be studied in General Bird's able writings on the subject. The account of the battle of the Wadi shows that more vigour and determination in the conduct of the flank attack might have resulted in a decisive victory: the inactivity of our cavalry brigade on this day seems difficult to excuse.

The Operations in February.—In Chapter XXII the author narrates the operations up to the end of February, with all the difficulties caused by the climate and by the shortage of almost

Everything necessary for the prosecution of the campaign. On January 24th came a thunderbolt from General Townshend in the shape of a telegram to say that he had discovered enough food to last for another 84 days, instead of only about 3 weeks (on half rations), as he had stated previously. This belated information of course altered the situation completely and, had it been available three weeks earlier, would in all probability have led to a radical modification of General Aylmer's plans. Instead of his premature and hastily planned attacks between the 6th and 21st January, General Aylmer would have had time to organise his forces, to collect ammunition and supplies, and to launch his offensive with a far better chance of success.

The Battle of the Dujaila Redoubt, 8th March 1916.—Chapter XXIII tells what is perhaps the saddest story of the whole volume: the story of the battle of the Dujaila Redoubt, which so nearly resulted in victory and the relief of Kut. The whole affair was well planned, bold in conception, and promised success. The night march, one of the longest ever undertaken with so large a force (over 20,000 men), was carried out successfully, thanks to the good leading of the guide, Captain (now Major) Mason, and the fine march discipline of the troops. The orders issued by Headquarters were rather too complicated and definite; and it was a great pity some artillery units were late in arriving at their rendezvous (apparently through no fault of their own), and that the transport accompanied the troops instead of following in rear.

In spite of regrettable delays, which were mainly due to the above mentioned points, the various columns reached their allotted positions by daybreak, or approximately so. General Kemball's troops arrived rather late at their objective, but not so late as to jeopardise their chance of victory. The surprise had been complete: the Turkish positions were practically unoccupied and were only some 4,000 yards distant from Kemball's troops: a rapid and energetic advance must have been successful: and then, from 6-30 A.M. onwards, more than three precious hours were wasted! Although our guns opened fire at about 7 A.M., and thus gave the enemy their first intimation of the impending attack, there was no forward move until 9-35. Thus, the Turks were allowed time to bring up reinforcements, and to occupy their empty trenches, and the golden opportunity of

relieving Kut and of inflicting a great defeat on the enemy was lost. A tragic failure took the place of what might have been a great and decisive victory.

The official account makes no criticisms, but leaves it perfectly clear that General Kemball, gallant soldier as he was, showed himself guilty of a serious error of judgment in not adopting the bold but safest course of an immediate advance with all his available strength. Surprise and rapidity of movement go hand in hand, and when complete surprise has been obtained, as on this occasion, rapid and energetic action is essential. A vigorous attack by General Kemball's three brigades, commenced at 6-30 A.M., and pushed on without any delay or hesitation, and supported by General Keary's force, must have carried the whole line of Turkish trenches, including the Dujaila Redoubt and possibly the Sinn Abtar Redoubt, by 8-30 or 9 o'clock at the latest, and it was not until well after 9 o'clock that the Turkish reinforcements began to trickle up.

Similary, the 37th Brigade, under the orders of General Keary, had by 7-30 A.M. reached a position south-east of and within about 800 yards of the Dujaila Redoubt, with the 7th Brigade in support. Although they soon recognised that the enemy trenches were practically unoccupied, they were apparently tied down by their orders to await the advance of General Kemball's columns, and were not allowed to move forward to the attack. As late as 9-50 A.M. the 37th Brigade and Major Leachman, the Political Officer, reported the Dujaila Redoubt to be only lightly held. Late in the afternoon, at 4-30 P.M., when the Turkish trenches were strongly held, the 8th and 37th Brigades attacked and actually succeeded in capturing the enemy position though subsequently driven out by a counter-attack, thus showing how comparatively easy this would have been in the early morning.

The action of our cavalry brigade is inexplicable. If ever there was an opportunity of achieving an important success by bold action, it was on this day. Posted as they were on our left flank, it seems to have been in their power to threaten the enemy's rear and to delay the arrival of his reinforcements. There would probably have been little opposition, and it appears that only a few Arabs were present, and they were much demoralised by the complete surprise which had taken place. But the cavalry

did practically nothing, and the total casualties among four regiments only amounted to 39, including both March 8th and 9th.

One of the striking points brought out throughout this book is the failure of the cavalry to achieve anything of importance. They seem to have devoted much time and thought to watering their horses, but the leadership seems to have been woefully lacking in dash and energy. The splendid performances of our cavalry later on in the war, under General Cassels in Mesopotamia, and under Generals Barrow, Chauvel, Chaytor and Macandrew in Palestine, show that the troops themselves were not to blame.

General Moberly's narrative of the Dujaila operations is admirably clear, and he ends the chapter by saying that the conduct of the operations "has probably given rise to more comment and criticism than any other action in the campaign." This statement is certainly true, and the most lively critics are those who took part in the battle. It undoubtedly shows that the attempt to turn the Turkish right flank near the Dujaila Redoubt gave the best prospect of success of any of the previous attempts to relieve Kut. Its failure was due to over-caution and lack of boldness.

The extent to which General Townshend's force should have co-operated will always be a moot point. He had made all preparations to support the operation against the Dujaila Redoubt with a force of two brigades, but could take no action before dawn for fear of giving warning to the enemy. It seems certain, however, that his failure to take any action was a mistake. He should have made a vigorous attempt to cross the river immediately after dawn and to co-operate with all his available strength with General Aylmer's turning movement. Failure would of course have had serious consequences, but no more serious than the subsequent fall of Kut, and it was the right time and opportunity to take a big risk.

Such was the battle of the Dujaila Redoubt, which in reality sealed the fate of the gallant garrison of Kut. But it did far more than that. It involved a gigantic effort on the part of the British Empire to atone for our failure, an effort which was eventually crowned with complete victory, but which necessitated the employment, in this minor theatre of the war, of a force whose total ration strength amounted to approximately half a million men.

The Last Phase of the Relief Operations.—Chapters XXIV and XXV deal with the events of the next six weeks and the repeated efforts of the Tigris Corps (now under the command of General Gorringe, who had relieved General Aylmer) to break through the Turkish defences. General Moberly describes very clearly the enormous difficulties caused by the shortage of transport of all kinds, by the totally inadequate facilities of the port of Basra, by the weather, which was adverse throughout this period, and by the floods. The accounts of the various actions during this period, *i.e.*, Hanna, Fallahiya, Sannaiyat, Bait Isa, the attack on the Sannaiyat position on April 22nd, and the gallant attempt by the "Julnar" to revictual Kut, are all of great interest; the description of the Bait Isa fighting, and of the great Turkish counter-attack on the night of the 17th/18th April is of special interest. It was a most gallant struggle against odds. The Turks were in strong, well prepared positions, and our numerical superiority was very small, never sufficient to justify any real confidence in breaking through the enemy's elaborate trench systems. But the difficulties of climate, mud and floods were even greater than the resistance of the enemy.

At this stage the Turks were fighting very well; they had met with considerable success in holding up our advance, and they were now convinced that Kut must fall before long. On the whole, they were well handled, always ready to deliver vigorous counter-attacks, and German influence and advice were undoubtedly of great assistance. Moreover, their morale had been raised to an important degree by our evacuation of the Gallipoli Peninsula, which was not unnaturally regarded as a Turkish victory. And yet, well as the Turks fought, with all the advantages of strong defences and climatic conditions, our tired troops invariably showed themselves superior to them whenever they met on anything like equal terms.

The Fall of Kut.—Chapter XXVI deals with the last stages of the siege of Kut, the hardships of the garrison, and the final surrender on the 29th April. It also gives a vivid description of the terrible sufferings undergone by our troops in captivity, not from hatred or cruelty on the part of the Turks, but owing to their apathy, dislike of responsibility, and general incompetence. Over 4,000 of the 12,000 prisoners (this total including 3,000 followers),

troops who had defeated the Turks in every engagement, died in captivity and as General Moberly says, in circumstances which must for ever form a blot on the Turkish reputation. No less than 1,700 of the British rank and file, *i.e.*, more than 70 per cent., died in captivity, or have never been traced.

Miscellaneous.—There are 23 appendices, which complete the story told in this most valuable book and there are 11 good maps in a pocket of the cover in addition to other maps and illustrations. The index at the end of the book is useful, though not quite complete. In general, the volume has been got up in a very thorough and satisfactory way and is exceptionally free from misprints and minor errors.

Two trivial points are perhaps worthy of notice. No mention is made of the Liquorice Factory in the account of the defence of Kut. General Moberly throughout speaks of the detached position on the right bank of the Tigris as Woolpress village, whereas the name familiar to the troops was that of the Liquorice Factory; however, the author's appellation of Woolpress village is probably technically correct, and yet it seems a pity to omit so well known a name.

Secondly, no mention is made of Major Leachman's sunrise reconnaissance of the Dujaila Redoubt on the 8th March; on page 332 he is merely described as having confirmed the 9-50 A.M. report of the 37th Brigade that the Dujaila Redoubt appeared even then to be only lightly held. In point of fact, this gallant officer entered the Redoubt himself disguised as an Arab about sunrise, and returned to report that there was a garrison of only about 40 men.

The writer's opinion of General Moberly's book has already been given, and it only remains to congratulate the British Government on having found such able military historians as Generals Edmonds and Moberly to tell the story of the Great War.

"A Study of War." BY ADMIRAL SIR REGINALD CUSTANCE, G.C.B., K.C.M.G., C.V.O., HON. D.C.L. (Published by Constable & Co., London, 1924, at 12s.)

The chapters which go to form this book appeared originally in the "Naval Review"—the journal for private circulation to members of the Royal Naval Society.

The author sets out to expound a new theory of war; or, rather, to reaffirm the old theory on a new basis. Clausewitz, the original apostle of the "will to power," bequeathed his theory of war to the German people for three generations. Sir Reginald Custance shows that all wars can be more truly traced to the "will to security," security racial, dynastic, or political.

The author then differentiates between the national or political object, which is security, and the military aim, which is to destroy or to neutralize the enemy's armed forces by battle or the threat of battle. The author lays great and much-needed stress on this differentiation. The destruction or neutralization of the enemy's forces is the primary military aim: it is too frequently confused with political objects such as the annexation of enemy territory or the security of our own territory or trade. The secondary military aim is to weaken the enemy's forces and thereby to facilitate the ultimate attainment of the primary aim. Here the author's definition of strategy is worthy of note: "It is the province of strategy to attain the national political object through the complete, partial, or threatened achievement of the military aim under existing political, economic and military conditions."

The author illustrates his meaning by numerous historical examples, of the national object, of the military aim, primary and secondary, and of their reaction on each other. Some of these examples are perhaps a trifle recouidite. Nor are we in full agreement with his classification of the military aim under "primary" and "secondary." Surely the primary military aim must always be the destruction of the enemy—that and nothing less. And neutralization would be better classed, with attrition, as a secondary aim preliminary to the attainment of the primary aim. The Admiral has in mind, perhaps, the rôle of the Grand Fleet in the late war: a rôle successful no doubt and in the circumstances inevitable, but one which left the High Seas Fleet in being a constant menace and a constant drain on our resources. Our primary aim was the destruction of that fleet.

Admiral Custance emphasises that every land action of a campaign must be regarded as forming part of a single activity; while every sea action similarly forms part of another, and distinct activity. But it is hard to follow his reasoning when he states that "an army alone is a threat to an island State whether that State possesses a navy or not, as the Norman

Conquest proved." Had the Saxon fleet possessed complete command of the Channel, either the Battle of Hastings would never have been fought, or had it been fought the Norman army, deprived of reinforcements, would thereafter have rapidly succumbed to attrition.

A chapter is devoted to the relations between the Navy, Army and "Aery." Here Admiral Custance shows that air operations, as opposed to sea and land operations, do not themselves constitute a separate activity, but form part and parcel either of the sea or land campaign. The inference is that our present organization of a separate air force is unsound. This of course is the accepted naval view.

Passages of the book are somewhat obscure and pedantic. But it contains many points of interest, primarily to the soldier and the sailor, but also to the would-be statesman. For it is the statesman who so frequently imposes on his nation's forces a political object at variance with the military aim. And invariably with disastrous results. If, therefore, our statesmen were to master the principles set forth in this book, and the meaning of strategy as above defined, it would be well.

"Sir John Moore's system of Training." BY COLONEL J. F. C.

FULLER, D.S.O.

Colonel Fuller's latest book, in contrast to his previous one "The Reformation of War" which predicts the war of the future, has taken us back a century, in an endeavour to throw more light on the methods of one of the greatest trainers of troops the British Army has ever had.

To the student of Military History it is always a matter of regret that so little has been written of Sir John Moore until quite recently and that so little seems to be known of the system on which he built up the efficiency of the famous Light Division at Shorncliffe camp.

Perhaps the little details of a training which would be of such interest to us to-day were considered too insignificant to record. The author's object has been to try and collect these details and reconstruct the system which undoubtedly laid the foundation of the training of the British Army of to-day.

Colonel Fuller has not been able to find any definite training instructions written by Sir John Moore himself, but by putting together some of the Standing Orders of the light infantry regiments under Moore's command and quoting from certain training systems which Moore almost undoubtedly had studied and approved, he has managed to reproduce many interesting details of drill and administration and has recaptured the wonderful spirit of "Camaraderie" and esprit de corps of the troops of the Light Division, which was only equalled again in the history of the British Army by the Expeditionary Force of 1914.

The book is necessarily rather disjointed as the author aims at collecting facts rather than commenting on them.

It is, however, interesting reading and contains several amusing anecdotes such as the following:—

"At times he could be drily sarcastic. Moore was one day inspecting a worthy old Colonel with a soul not above buttons. "Your men are clean—very clean" said Moore; and then, after a pause, he added "so are the Gosport Volunteers."

It is interesting, in view of the difficulties we experienced in making a landing at Gallipoli, that when Moore took over command at Shorncliffe the plan was, in the event of a French landing, that the troops near the coast should withdraw on London removing all horses, cattle and supplies out of reach of the invader and to give battle somewhere between the coast and London.

Moore insisted on this being changed and ordered that the enemy should be attacked with every available man while he was in the act of disembarking.

No book by Colonel Fuller would be complete without some reference to the war of the future and it finishes with an epilogue contrasting our position to-day, as regards training, with that of the British Army at the beginning of the 19th century, and suggests that—

"What we require to-day is a second Shorncliffe camp, another Experimental Brigade, in which not only new weapons of war will be tried out and new tactics elaborated, but new methods of discipline will be tested.....Once given such an organisation, then the next step is to find a John Moore, not necessarily a genius, but a man of character, of moral courage,

integrity and foresight. Given such a man and given such a Brigade, once again will the Army be leavened and a new epoch in its history ushered in."

Colonel Fuller has certainly succeeded in collecting more information on the subject of the methods of Training of Sir John Moore than has hitherto been published and in presenting it in very readable form.

"Tannenberg—The first thirty days in East Prussia." By MAJOR-GENERAL SIR EDMUND IRONSIDE, K.C.B., C.M.G., D.S.O. (Published by Blackwood & Sons, 1925, London, at 15s.)

The campaign of Tannenberg is of peculiar interest to us to-day, in that it was *par excellence* a campaign of moving warfare wherein a comparatively small, highly trained and highly mobile, force—such as we may hope to possess in the future—was pitted with amazing success against an enemy numerically its superior. The author of the book under review is exceptionally fitted to describe the campaign. Sir Edmund Ironside knows Russia and the Russians intimately; has visited the scene of the operations he describes; and has been at pains to go to the original sources, Russian and German, for his documentary evidence. The mass of crude information he has so obtained he arranges for us with the trained understanding of a Staff College commandant. The result is a model of military history.

The Franco-Russian Alliance dated from 1892; the Military Convention between the two countries was concluded in the succeeding year.

The years which followed were devoted to the elaboration of a combined plan. And combination was precisely the difficulty which faced the French and Russian General staffs. France and Russia were acting on exterior lines; German mobilization would be exceedingly rapid; French mobilization must necessarily conform; the first great battle of the war might be expected about the fifteenth day of mobilization; if she were to relieve the pressure on France, Russia's mobilization must obviously be completed on or soon after that date. We find, therefore, that every effort of the French General Staff was devoted to speeding up Russian mobilization. In 1901 the Russian mobilization still took 23 days. But, at the final conference in 1913 attended by Generals Joffre and Jilinsky, it was settled that France should be ready to advance with 1,300,000 men on the eleventh day of mobilization; Russia with 800,000 men about the fifteenth day.

In the scope of a review it is impossible to follow the actual campaign in detail; the most general description must suffice.

For the initial operations in East Prussia the Russians disposed of two armies. The First Army (Rennenkampf), 3 corps, 6 cavalry divisions and independent cavalry brigade, concentrated in the area Kovno-Grodno for an advance Westward into East Prussia. Its objective was the forcing of the Insterburg gap between the fortified zone of Königsberg and northern end of the line of the Masurian Lakes. The Second Army (Samsonoff), 5 corps and 3 cavalry divisions, concentrated in the Polish salient, opposite the southern end of the line of the Masurian Lakes, for an advance north-west against the German lines of communication to the Vistula; turning the line of the Lakes to their west. To oppose the advance of these two armies, the German Eighth Army (Von Prittwitz), 3 corps, 1 reserve corps, 1 cavalry division, and certain fortress garrisons, was disposed in two main groups; but Von Prittwitz wisely retained nearly half his force in central positions whence he could support either group as required. The rôle of the Eighth Army was to protect East Prussia till a decision had been gained in France and reinforcements could be spared for the Eastern Front.

On 13th August Jilinsky, now commanding the Russian N.-W. Front, issued Instructions to the First and Second Armies; these armies were to cross the frontier on their respective fronts, the First Army on 16th, the Second Army on 18th August. As the rear services of these armies could not be ready till 19th August, and as, further, each army had a long distance to cover from its concentration area to the frontier, this decision involved their commitment to a lengthy campaign without proper means for their maintenance. The decision was to prove particularly disastrous to the Second Army whose advance lay through a country devoid of roads and railways.

Von Prittwitz, rightly interpreting the situation, determined to take the offensive against the more menacing Russian First Army, and concentrated towards his left flank. The timing of the Russian advance and the excellent road and railway communications in East Prussia gave him the opportunity to deal with the Russian armies in detail. This first phase of the campaign, which opened exceedingly well for the Germans, terminated on 20th August with the battle of Gumbinnen. Rennenkampf was very roughly handled; but thanks to Von Prittwitz's failure to co-ordinate

the attacks of his corps, no decision had been gained by the evening of the 20th. Von Prittwitz then received definite news of the advance of the Russian Second Army. This threat to his rear was too much for his nerves. He broke down completely and ordered a retirement behind the Vistula.

The situation was saved for the Germans by Von Hoffman, General Staff Officer in charge of operations to Von Prittwitz. Without Von Prittwitz's knowledge Von Hoffman ordered a concentration against Samsonoff's left flank. Von Prittwitz and his Chief of Staff Von Waldersee were immediately afterwards superseded by Hindenburg and Ludendorff. When the latter independently came to the same decision to attack Samsonoff, he found his task greatly lightened by the dispositions Von Hoffman had already made.

The second phase of the campaign terminated with the complete destruction of the Russian Second Army at Tannenberg, which battle ended on August 30th. The disaster was the greatest defeat of the war: the Germans claim 95,000 unwounded and 30,000 wounded prisoners, and 500 guns. The envelopment of the Russians was largely due to Von François, commander of the I Corps, who, realising the poor fighting qualities of the Russians, boldly disregarded his orders. After Gumbinnin the Russian First Army had allowed the German force to disengage from its front unmolested: the First Army played no part at Tannenberg.

Ludendorff was now free to turn upon the First Army. The third and last phase of the campaign extended till 12th September when, as the result of the Battle of the Masurian Lakes, *Rennen-kampf* was driven back across the Russian frontier. At one stage of the battle it seemed that a repetition of Tannenberg was inevitable: envelopment by the Germans was all but achieved. But Ludendorff, failing to realise the demoralization of the Russians, lost the golden opportunity through over-caution; and *Rennen-kampf* finally succeeded in extracting the shattered remnants of his First Army, with the loss of 145,000 men and 150 guns during the brief campaign.

The causes of the Russian disaster were many and manifold. The Russian Higher Command altered plans and railway concentrations at the last moment, and gave impossible time-table to its army commanders. These army commanders, in turn, acquiesced in the time-tables, though they knew that a complete break-down of the supply arrangements must ensue; as a result, the Second Army was

defeated by hunger and exhaustion before a shot was fired. And though greatly superior in total numbers, the Russian commanders rarely achieved superiority at the decisive point, nor was there any co-operation between the two armies. Further, the Russian armies were under-gunned and signalling and technical equipment generally was woefully lacking—mechanical transport was non-existent. The reckless use of wireless “in clear” furnished the Germans with complete information of intended movements, and the most elementary reconnaissance and protective duties were neglected. In fact, the handling of the Russian cavalry was grotesque. We can only pray that, when next we go to war, our enemy may be similarly delivered into our hand.

It is interesting to note that General Ironside does not hold the generally accepted view that the early intervention of the Russians diverted German forces from the Western Front. He shows that, when on 25th August the German Supreme Command decided to despatch two corps from the Western to the Eastern Front, this decision was due rather to an exaggerated conception of the extent of the German victories in France than to any anxiety about the situation in East Prussia.

The book is illustrated with fifteen excellent maps and sketches. The publishers Messrs. Blackwood and Sons are to be congratulated on a production altogether admirable at a very moderate cost.

“Military Geography of the British Commonwealth.” BY MAJOR A. E. W. SALT. (Published by Gale and Polden, Ltd., London, 1924, at 10s.)

The problem of Empire defence is primarily a problem of military geography in its wider sense; involving the study of factors political, ethnological, and commercial. It is in this wider sense that Major Salt has approached his task. To the soldier in general, therefore, and to the Staff College student in particular, his book cannot fail to be of value.

Commencing with a historical retrospect of the growth of the Empire from the foundation of the Jamestown Settlement in 1607, the author proceeds in three subsequent chapters to discuss the organization and resources of the Empire as now constituted and the economic basis of Commonwealth defence. Communications by sea, land, air, cable and wireless, are next treated in

some detail; and separate chapters are devoted to each of the self-governing Dominions, to India, and to British possessions in Africa. Follow five more chapters on subjects all of current interest and all bearing on Empire defence. The subjects so discussed are: the Near and Middle East; the problem of the Pacific; the land forces of the Commonwealth; the Imperial Conference; and the "New Europe." The book concludes with a brief review of the native races of the Commonwealth, and a useful chapter on the science of meteorology—a science of ever-increasing importance.

It will be seen, then, that the scope of the book is large. Hence it is of value primarily as a basis for further study. Of necessity, individual subjects are cursorily treated; for instance, we cannot look for an adequate treatment of India in a chapter of twenty-four pages, or of the Moroccan question in half a page. It is a pity, therefore, that the author does not throughout give references to the authorities whose works should be consulted for fuller details.

The printing and production is on the whole good, though there are a number of misprints which will doubtless be corrected in subsequent editions. Of the nine clear maps, that of Singapore in relation to the Pacific is particularly useful.

"The Military side of Japanese Life." BY CAPT. M. D. KENNEDY.

(Published by Constable & Co., London, 1924, at 16s.)

After being wounded on the Western Front, the author was one of two officers, both passed "unfit G. S." who were sent out as language officers to Japan in 1917. There he remained till December 1920. The book under review is a chronicle of his experiences first during the preliminary period spent mastering the language and subsequently during his attachments to the 34th Infantry Regiment at Shizuoka and to the Infantry School, his attendance at successive annual Grand Manœuvres, and his trips to Hokkaido, Manchuria, Siberia, Korea, etc.

Capt. Kennedy was obviously determined to benefit to the full from his time in Japan. He insisted everywhere on living as a Japanese, and his descriptions of the bill-of-fare in a regimental mess are blood-curdling. However, he managed to survive, to become a fervent admirer of all things Japanese—even to a

raw fish diet. And no doubt his claim is well-founded that to this Spartan policy he owed the universal courtesy and good-fellowship he experienced from Japanese officers.

The book reveals the Japanese army in a period of transition. At the 1919 manoeuvres the infantry still attacked in mass formation. The personnel, however, is excellent, and its discipline and powers of endurance remarkable. But the cavalry is neglected and frankly inefficient and the tactics of the artillery out-of-date; while material generally is much below the requirements of a modern army. However, the lessons of the war have not been neglected and a general reorganization is in process which will be completed in 1940. The process must necessarily be slow, since the defence vote already formed 50 per cent of the total budget at the time of the writer's visit.

It is, however, in its psychological aspect that the Japanese army is most interesting. We find that Japanese officers form a military caste apart, narrow-minded and laborious, with no interests outside their profession at which they are expected to work, almost literally, day and night. This military caste preserves to the full the admirable, though—to our eyes—archaic, traditions of blind devotion to the Mikado coupled with a personal honour so sensitive that we read of an Inspector of Cavalry who commits *hari kirri* because his views on shock tactics are not accepted by the General Staff. We learn, too, that it is not politic to publish a students' graduation list at the end of a course at a Japanese military school, lest the depression caused thereby among the less successful should lead to like lamentable results. We may well ask how a mentality which prefers suicide to an adverse report would stand the strain of defeat.

In fact, the Japanese army has never known defeat; and, to the superficial observer, appears obsessed with its own invincibility. In its heart of hearts, however, it is perhaps less sure of itself. An indication that all may not be well is furnished by the feverish attention devoted to "moral training" for the rank and file. Industrialism saps fanatical loyalty and Japan is becoming largely industrialized. It is a question how long the intelligence of the recruit can be drugged with patriotic propaganda, however liberal the doses administered.

The writer has at his disposal a mass of interesting matter. It is unfortunate that he has not made better use of it. The book in its present form is too long, and the art is lacking which makes scenes and people live for the reader.

"Tibet—Past and Present." BY SIR CHARLES BELL, K.C.I.E., C.M.G.
(Published by the Clarendon Press, Oxford, 1924, at 24s.)

Sir Charles Bell's book is at once interesting to the general reader and informative to the student of Central Asian politics, especially in relation to India's North-East Frontier problems.

After an instructive sketch of Tibetan history, two-thirds of the book treat of the state of affairs in twentieth century Tibet. The author is a fair critic, who whilst giving credit where credit is due, boldly criticises British policy in the past. He is nowhere destructive in his criticism, however, and in the last pages of his book he gives constructive suggestions of the greatest value for our future policy towards Tibet.

China has long been Tibet's suzerain, and many thoughtful Tibetans recognise that the friendship of another power is necessary to them if they are not to fall under her sovereignty also. Many of these men consider that Great Britain, through her Indian Government, should be that friend. Some of them would actually like to see Tibet the Protectorate of Britain, as Bhutan and Nepal are, so that they might be secured against aggression and yet be left unmolested in their internal administration. There is little doubt too that Britain could have made Tibet into such a Protectorate; but she did not want the responsibility. In this she has been wise, as the Tibetans realise that the British are not desirous of interfering with her, and trust her the more.

As Sir Charles Bell explains, India requires Tibet as a buffer on the North-East. To be a successful buffer, Tibet must be autonomous, and look to India for guidance rather than to anyone else. It should also be noted that the Buddhism of Tibet is very antagonistic to Bolshevism, and by strengthening Tibet's autonomous Government we are also helping to keep the fatal propaganda from penetrating India from the North-East. If China occupied Tibet, Lhasa might well form a focus of Bolshevik intrigue against India. India has, however, been to blame on more than one occasion for alienating Tibet from her, in the endeavour, presumably, to show the world that she was 'standing aloof.' There is a Tibetan prophesy which says, "the British are the road-makers of Tibet," meaning that the British will prepare Tibet for occupation by another power. We have been lucky in that up to the present the prophesy has not been fulfilled.

In 1904, "we knocked them down, and left them to the first comer to kick." China kicked them and might have gained permanent control of Tibet if the Chinese Resolution of 1911 had not changed the state of affairs.

For a time, too, during the Great War and after we refused them arms and ammunition. We had reasons for so doing, but Tibet naturally turned her eyes to Russia and Japan.

We have even lately hampered Tibet by still insisting on free trade across the frontier. Tibet is a poor country and in order to raise money for her army, which is in our own interests, the author suggests that she should be allowed to levy customs on imports as she did prior to 1904.

Russia has for many years been a competitor with Britain for the friendship of Tibet. That able Buriat, Dorjjeff, has ever worked for that end and is believed to be still doing so under the Soviet. Mongolia is closely related to Tibet by the bonds of religion and race, and Russia's power in Mongolia has assisted to raise her prestige in Tibet—just as Britain's happy treatment of the Dalai Lama on his flight to India in 1911 raised British prestige in Mongolia.

Japan, too, by her rapid rise to power and her increasing influence in Mongolia and opposition to Bolshevism, has also much prestige in Tibet, and for a while there was a Japanese army instructor in Lhasa, and Japanese arms were coming into the country. India has, therefore, much competition for the friendship of Tibet—and it is probably due more to the personality of Sir Charles Bell and one or two other men like him, that Tibet has for the moment definitely orientated herself towards the South. The Indian Government requires sedulously to cultivate this orientation and not break its continuity, as has been done in the past for whatever the reason; *e.g.*, at any negotiations with China concerning Tibet, there should always be a Tibetan representative present. A neglect of this principle has offended Tibet in the past and would still more offend her now.

The author suggests that Britain should do her best to have the Sino-Tibetan frontier question settled as soon as possible, on the lines proposed at the Simla Conference in 1914, *i.e.*, with an Outer autonomous Tibet, and an Inner Tibet including Batang, Litang and Tachienlu, where Tibetan officials would retain their existing rights, which include among other things the control of most of the monasteries and the appointment of local chiefs, but

where China could send troops, or officials or plant colonies. This is a compromise to meet the claims of both parties. We should refuse Chinese agents access to Tibet from the side of India until this has been done.

Until the frontier is settled there will be restlessness in Tibet and anti-British propaganda, abetted by the Bolsheviki, in China. This propaganda is continually accusing the British of invading Tibet. There is also the danger of a serious war as soon as the Chinese put their Eastern house in order. The Tibetans, who especially in the East of Tibet are magnificent specimens of manhood, are brave and hardier than the ordinary Chinese soldiers whom they have to meet and whom, given equal weapons, they can defeat, as they have often done in the past. It is, however, questionable how they would fare in equal combat with an army of Northern Chinese. It is interesting to know that the upper class Tibetan in the administration of Eastern Tibet is now more civilized and better educated than his Chinese counterpart. The result is an increased feeling of Nationality and desire for their own rulers amongst the people who often preferred the Chinese rule in the past as being fairer.

Among other things the description of the personality and life of the Dalai Lama, one of the world's most romantic figures, as described by his one intimate European friend, cannot fail to interest all readers.

It is not generally known, perhaps, that to get the required permission for the Mount Everest Expedition was a matter requiring great tact. Tibetans do not understand explorers and treat them with suspicion (just as they do Missionaries, who are only allowed in Eastern Tibet under the protection of the Chinese, with whom they have come to be consequently identified). The British explorer "is apt to be misled by the apparent welcome and kindly treatment which now-a-days he receives from Tibetans." This is due to courtesy. "In their hearts, they dislike his coming," unless they think that he can help or advise them. Besides, the Nepalese, our allies, refused passage to the expedition. Yet Sir Charles, being present in Lhasa, was able to get permission at once for the expedition by a private audience with the Dalai Lama. Such is the strength of personal intercourse for removing misunderstanding.

Besides the information regarding Tibet, the author gives a clear insight into the position of Bhutan, Sikkim and Nepal *vis à vis* with India, Tibet and one another. There is a possibility of

future grave friction between Tibet and Nepal over the behaviour of Nepalese in Lhasa and with regard to the undelineated frontier between the two countries near Nyanam. Besides having made himself *persona grata* with the Tibetans, Sir Charles Bell is a friend of the Sikkimese and Bhutanese with both of whom he has had official connection. Probably he has been responsible more than anyone else for consolidating by Treaty or advice the strength of our frontier in these countries and in the wild regions to the North and North-East of Assam.

The author considers, from conversation with influential Tibetans, that Tibet will only remain in its present Indian environment as long as there are British troops in India, and as long as Tibetan frontier politics remain in British control. With India autonomous, Tibet would expect nothing but trouble from the South.

Sir Charles Bell has included some fine photographs; and, an excellent index and the text of all known treaties between Tibet and other countries (in an appendix) add greatly to the value of this work.

"Secret Societies and Subversive Movements" (Second Edition). BY NESTA H. WEBSTER. (Published by the Boswell Printing and Publishing Co., Ltd., London, 1924, at 15s.)

Mrs. Webster sets out to prove that "secret forces of revolution" which aim at destroying civilization are at work in the world to an extent that calls for vigorous counter-measures. So far as England is concerned she is convinced that only a great national movement can save the country from destruction—"a movement in which men of all classes and above all of the working class will take part." In support of her theory she follows the course of associations which "have worked throughout nineteen centuries to undermine social and moral order," and since she never departs from a set path of plain reasoning, even when making the most definite warnings, her book deserves careful reading.

We are told a great deal of the "Jewish peril," of Jewish activities in Russia, or Jewish power "behind the scenes" in England and elsewhere. "Pan-Germanism" has a chapter to itself; and whatever we may think of Mrs. Webster's deductions there is no doubt that some of her evidence is not to be dismissed lightly.

From a soldier's point of view Mrs. Webster's book is of value as affording a basis on which the movements that affect national moral both in peace and war can be studied. In these days of communistic intrigue and pacifist propaganda it is necessary that the heart of a nation should be carefully watched, for in War it has to be steeled to disregard the terrors of modern warfare. The widespread unrest in the world to-day is the more dangerous because the waves of any disturbance outpace a wireless message; and any soldier who neglects to study the psychology of his people is neglecting a factor which will be a vital one in future wars.

"Perforated Map, an aid for night operations." By CAPTAIN T. J. EDWARDS, The Somerset Light Infantry (Prince Albert's), with a foreword by General Sir George F. Milne, G.C.M.G., K.C.B., D.S.O. (Published by Gale and Polden, Aldershot, 1924, at 1s.)

Captain Edwards has attempted in this little book to produce a system which will facilitate reconnaissance and movement at night.

The basis of the system is the preparation of a large scale map of the area concerned; the pricking through from this enlargement on to a piece of ordinary brown paper the principal features according to a considered system of conventional signs; the recognition by night of these perforations as representing features on the ground by holding the perforated map against some kind of light, viz., the moon, stars, enemy flares, luminous watches, and compasses.

The author states that the use of a perforated map combined with the luminous compass, renders night marching simplicity itself but the following objections have been raised by officers who have used the map:—

- (a) In order to see the perforations, an enlargement is generally necessary; this means several maps if any distance is to be covered.
 - (b) The various types of pin pricks are very difficult to distinguish.
 - (c) Folding the maps generally obliterates the pin pricks.
- On the whole it is not considered that the idea is of practical value.

A short account of the Russo-Japanese War. By "FOOTSLOGGER." (Published by Forester Groom and Co., London, at 5s.)

"Footslogger's" account of the Russo-Japanese War is strongly recommended to those who have to study this campaign for examination purposes.

As the author rightly emphasises in Chapter I (Introduction) the object of the study of Military History is to a great extent to ascertain the extent to which the correct application of principles has in the past led to success and to derive lessons from occasions when the neglect of these principles has led to disaster.

With this end in view, the author indulges in some very useful "post mortems" on various strategical and tactical actions of the campaign and he surveys these actions in the light of the "principles of war" as set forth in Field Service Regulations. This is a method which cannot but be of the utmost assistance to a student of the campaign especially for examination purposes.

The author does not perhaps attach sufficient importance to the rapid decline of moral in the Russian Army, a factor which was to a very great extent responsible for the continued Japanese successes.

Field Service Regulations say, "Neither numbers, armament, resources, nor skill can compensate for lack of courage, energy, determination and the bold offensive spirit which springs from a national determination to conquer" and from recent writings it is quite evident that the seeds of a revolt against the Tsarist Government were sown prior to 1904 and matured very rapidly during the Russo-Japanese War. These were very widespread and at the same time most dangerous elements at work in the Russian Army at this period which, had the War continued much longer, must have produced a state of affairs similar to that brought about by Kerensky's famous orders to the troops in 1917. An army which indulges in dreams of this nature is in no fit frame of mind to win battles, especially when pitted against a determined enemy such as Japan.

"Some Aspects of Imperial Communications." By MAJOR A. V. T. WAKELY, M.C. (Published by Sifton Præd & Co., London, 1924, at .)

To those interested in transportation problems Major Wakely has supplied a long-felt want. In his book, "Some aspects of imperial communications," he treats an abstruse and complicated subject with a skill which commends itself to the student of military subjects.

The book is especially recommended to those who have to study "transportation" for examination purposes. When he wrote the book Major Wakely evidently had the "Manual of Movement (War)" close at hand and he enlarges on the various principles of transportation, which are contained in this text book, in an interesting and practical way which cannot but prove of absorbing interest to the student.

I must own that when I started reading the book I hoped somewhere to find a discussion on the advantages and disadvantages of the Channel tunnel as a line of communication and was disappointed to find that this particular problem had been ignored. But this cannot in any way be held to detract from the general interest of the book nor from its particular value to those faced by an examination in military subjects.

From a soldier's point of view Mrs. Webster's book is of value as affording a basis on which the movements that affect national *moral* both in peace and war can be studied. In these days of communistic intrigue and pacifist propaganda it is necessary that the heart of a nation should be carefully watched, for in War it has to be steeled to disregard the terrors of modern warfare. The widespread unrest in the world to-day is the more dangerous because the waves of any disturbance outpace a wireless message; and any soldier who neglects to study the psychology of his people is neglecting a factor which will be a vital one in future wars.

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United Service Institution of India.

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If a member fails to pay his subscription for any financial year (ending 31st December) before the 1st June in the following year, a registered notice shall be sent to him by the Secretary inviting his attention to the fact. If the subscription is not paid by 1st January following his name shall be posted in the Reading Room for six months and then struck off the roll of members.

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Contributors are responsible, when they send articles containing any information which they have obtained by virtue of their official positions, that they have complied with the provisions of A.R.L., Vol. II, para. 204, and King's Regulations, para. 509.

Anonymous contributions under a *nom-de-guerre* will not be accepted or acknowledged: all contributions must be sent to the Secretary under the name of the writer and the paper will, if accepted, be published under that name unless a wish is expressed for it to be published under a *nom-de-guerre*. The Executive Committee will decide whether the wish can be complied with.

The Committee reserve to themselves the right of omitting any matter which they consider objectionable. Articles are only accepted on these conditions.

The Committee do not undertake to authorise the publication of such papers as are accepted, in the order in which they may have been received.

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Manuscripts of original papers sent for publication in the Journal will not be returned to the contributor, unless he expresses a wish to have them back and pays the postage.

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1. The United Service Institution of India is situated at Simla.
2. Officers wishing to become members of the United Service Institution of India should apply to the Secretary. The rules of membership are printed inside front cover.
3. The reading-room of the Institution is provided with all the leading newspapers, magazines, and journals of military interest that are published.
4. There is a well stocked library in the Institution, from which members can obtain books on loan free. Suggestions for new books are solicited, and will be submitted to the Committee. Books are sent out to members V.-P. for the postage.
5. The Institution publishes a Quarterly Journal in the months of January, April, July and October which is issued postage free to members in India and to all life members but ordinary members wishing to have their Journals sent to any address out of India must pay in advance Re. 1 per annum to cover foreign postage charges.
6. Members and the public are invited to contribute articles to the Journal of the Institution for which honoraria will be awarded by the Executive Committee. Rules for the guidance of contributors will be found in para. IV, Secretary's Notes.
7. Members are responsible that they keep the Secretary carefully posted with regard to changes of address.
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United Service Institution of India.

OCTOBER, 1925.

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I.—New Members.

The following new members joined the Institution from 1st June to 31st August 1925.

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Colonel W. D. Croft.
Captain R. A. Slater.
Captain H. J. Hawthorn.
Lieut. G. M. S. Webb.
Captain P. H. W. Hicks.
Captain W. J. C. Duncan.
Captain L. Monier-Williams.
Captain J. L. F. O'Ferrall.
2nd-Lieut. E. C. Saw.
Bt.-Lieutenant-Colonel J. A. Muirhead.
2nd-Lieut. I. F. Low.
Captain D. Anstey.
Captain H. C. H. Eden.
Captain A. P. ff. Churchill.
Captain H. H. Johnson.
Captain K. A. Gosnell.
Captain A. J. M. Wilton.
Major-General G. McK. Franks.
Captain T. G. S. Hide.
Major A. C. H. Trevor.
Captain A. B. Blaxland.
Captain J. D. Gage-Brown.
Captain D. Q. H. Agnew.
Captain R. N. Nunn.
Major J. C. Walker.

II.—Examinations.

Books on military history and languages with dictionaries are available in the Library. The following list of books may be found useful for reference by officers studying for Promotion Examinations or entrance to the Staff College.

The lists of books presented and purchased as shown in the current year's Journals should also be consulted.

The special periods of military history for future Promotion Examinations are as follows (*vide* I. A. O. 409 and 493 of 1924 and I. A. O. No. 172 of 1925):—

1	2	3	4	5
Serial No.	Date of examination.	Campaign set for the first time.	Campaign set for the second time.	Campaign set for the last time.
1	April, 1925 ...	The Russo-Japanese War, 1904, to the Battle of Liao-Yang inclusive.	...	Campaign in Gallipoli (as given in Serial 3, column 3 of Army Order II of 1922).
2	October, 1925	Operations in Waziristan, 1919-20.	Russo-Japanese War— (a) <i>General Period</i> .—1st May 1904 (Yalu), to 5th Sept., 1904. (b) <i>Special Period</i> .—Battle of Liao-Yang, 23rd Aug. to 5th Sept. 1904.	
3	April, 1926 ..	...	Waziristan (as given in Serial 2, column 3).	Russo-Japanese War (as given in Serial 2, column 4).
4	October, 1926	Campaign of the British Army in 1914 in France and Belgium from the outbreak of hostilities up to and including the operations on 9th Sept., 1914.	...	Waziristan (as given in Serial 2, column 3).

The following Extract of Army Council Instructions, issued for week ending 7th January, 1925, is printed for the convenience of candidates.

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4. Examination of Officers for Promotion—Military History.

1. With reference to A. O. 464 of 1924, the period of study of the Russo-Japanese War, 1904, for the examination to be held in April, 1925, will remain as stated in A. O. 106 of 1924.

2. In October, 1925, and April, 1926, the periods of the Russo-Japanese War for examination will be altered to the following:—

(a) General period from 1st May, 1904 (Battle of the Yalu), to 5th September, 1904, both dates inclusive.

(b) Special period. The Battle of Liao-Yang, 23rd August to 5th September, 1904.

3. Candidates will be required to have a knowledge of the tactics employed in the special period, while questions in the general period will be mainly of a strategical nature.

4. Normally 75 per cent. of the question for captains will be taken from the general period and 75 per cent. of the questions for lieutenants from the special period.

5. Both periods will be included in a single three-hour examination paper.

MILITARY HISTORY.

1. *The Campaign of the British Army in France and Belgium up to 20th November, 1914.*

A.—OFFICIAL HISTORY OF THE WAR.

Military Operations, France and Belgium, Vol. I (to October 1914.)

Ditto	ditto	Vol. II (to 20th November 1914) (in Press).
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Sir John French's Despatches.

B.—OTHER BOOKS.

40 days in 1914 (General Maurice, new edition).

1914 (Viscount French).

My War Memories (Ludendorff).

General Headquarters 1914—16 and its Critical Decisions (Falkenhayn).

The March on Paris, 1914 (Von Kluck).

Ypres, 1914. (An official account) (German General Staff.)

Oxford Pamphlets, August 1914. The Coming of the War. (Spencer Wilkinson).

Oxford Pamphlets, August 1914, Nos. VII and X.

Times Documentary History of the War, Vol. V, Military, Part I.

Times Documentary History of the War, Vol. VIII, Part III.

Der Grobe Krieg: Die Schlacht bei Mons (German General Staff).

Der Grobe Krieg: Die Schlacht bei Longwy (German General Staff).

Story of the Fourth Army (Montgomery).

2. *The Palestine Campaign.*

A.—OFFICIAL ACCOUNTS.—

A Brief Record of the Advance of the Egyptian Expeditionary Force, 1919.

The Australian Imperial Force in Sinai and Palestine (H. S. Gullett).

The New Zealanders in Sinai and Palestine (Lt.-Col. C. G. Powles).

Yilderim (Dr. Steuber).

B —OTHER BOOKS.

Allenby's Final Triumph (W. T. Massey).

How Jerusalem was Won (W. T. Massey).

Outline of the Egyptian and Palestine Campaigns, 1914—18
(Bowman-Manifold).

L'Attaque du Canal de Suez (Douin).

3. *The Gallipoli Campaign.*

Official Account: Official History of the War, Naval Operations,
Vols. II and III.

Gallipoli Campaign (Outline of Military Operations). By A
Student.

Official Despatches.

The Dardanelles (Callwell).

Experiences of a Dugout (Callwell).

Despatches from the Dardanelles (Ian Hamilton).

The Navy in the Dardanelles Campaign (Wemyss).

The World Crisis (Winston Churchill).

**4. *The Russo-Japanese War, 1904, up to and including
the battle of Liao-Yang.***

A Staff Officer's Scrapbook (Ian Hamilton).

German Official Account.

Lectures on the Strategy of the Russo-Japanese War (Bird).

Question on the Russo-Japanese War (Brunker).

Official Account: The Russo-Japanese War (Naval and Military), 3 Vols., published by Committee of Imperial Defence.

Outline of the Russo-Japanese War (Ross).

A Study of the Russo-Japanese War (Chasseur).

My Experiences at Nan Shan and Port Arthur (Tretyakow).

Outline History of the Russo-Japanese War, 1904, up to the Battle of Liao-Yang, with Questions and Answers (P. W.)

A short account of the Russo-Japanese War ("Footslogger").

An account of the battle of Liao-Yang (with questions and 10 maps for examination purposes) (Bird).

5. *Organization of Army since 1868.*

A.—ORGANIZATION OF ARMY SINCE 1868.

History of British Army, by Fortescue. Vols. I to XI.

Outline of the Development of British Army, by Maj.-Genl. Sir W. H. Anderson.

Our Fighting Services, by Sir Evelyn Wood.

B.—FORCES OF THE EMPIRE.

The Statesman's Year Book.

Army List.

Articles in Newspapers and Magazines, viz., R. U. S. I.

Army Quarterly, Journal of the U. S. I. of India, etc.

6. *Development and Constitution of the British Empire.*

A.—THE BRITISH EMPIRE.

Encyclopædia Britannica—(contains much concentrated information).

The Statesman's Year Book.

Whitaker's Almanack.

The Colonial Office List.

The Government of the British Empire (Jenks, 1923).

The Foundation and Growth of the British Empire (J. A. Williamson, 1918).

The Beginnings of English Overseas Enterprise (Sir C. P. Lucas, 1917).

The British Empire Series. (XII volumes).

The Government of England (L. A. Lowell, 1912).

The Expansion of the British Empire (W. H. Woodward, 1921 and 1924 edition).

Overseas Britain (E. F. Knight, 1907).

The Origin and Growth of the English Colonies and of Their System of Government (H. E. Egerton, 1903).

- A Short History of Politics (Jenks, 1900)
The English Constitution (Bagehot, 1909).
The Expansion of England (Sir J. Seely, 1883).
Introduction of the Study of the Law of the Constitution
(A. V. Dicey, 1908).
England in the Seven Years' War (Sir J. Corbett, 1907).
Selected Speeches and Documents on British Colonial Policy,
2 Vols. (A. B. Keith, 1918).

B.—BOOKS ON SPECIAL PORTIONS OF THE EMPIRE OR WORLD.

- The Rise and Expansion of British Dominions in India (Sir
A. C. Lyall, 1894).
A Brief History of the Indian Peoples (Sir W. H. Hunter,
1907).
The Nearer East (Hogarth, 1902).
Modern Egypt (Cromer, 1908).
Egypt and the Army (Elgood, 1924).
The History of Canada (W. L. Grant).
Nova Scotia (B. Wilson, 1911).
Report on British North America (Sir C. P. Lucas).
The Union of South Africa (R. H. Brand, 1909).
Short History of Australia (E. Scott).
History of the Australasian Colonies (Jenks, 1912).
The English in the West Indies (J. A. Froude, 1888).
The Lost Possessions of England (W. F. Lord, 1896).

7. Military Geography.

- Naval and Military Geography of the British Empire (D.
Vaughan Cornish, 1916).
Elementary Imperial Military Geography (Capt. D. H. Cole,
1924).
Introduction of Military Geography (Col. E. S. May).
Imperial Defence (Col. E. S. May).
Main Feature of the Japanese and other Pacific Problems.
(Reprinted from "Morning Post." Sifton Præd.)
Britain and the British Seas (H. J. Makinder, 1907).
Military Geography (Macguire).
Imperial Strategy (Repington).
War and the Empire (H. Foster).

Historical Geography of British Colonies (Dominions), 7 Vols.
(Sir C. P. Lucas, 1906—17)—

Vol. 1, Mediterranean.

Vol. 2, West Indies.

Vol. 3, West Africa.

Vol. 4, South Africa.

Vol. 5, Canada.

Vol. 6, Australia.

Vol. 7, India.

The Influence of Sea Power on History (A. T. Mahan, 1890).

Historical Geography of the British Empire (Hereford George).

The Mastery of the Pacific (A. R. Colquhoun, 1902).

Frontiers (C. B. Fawcett, 1918).

III.—Payment for Articles in the Journals.

Articles accepted for publication in the Journal are paid for, and a sum of approximately Rs. 400 is awarded for articles and reviews published in each Quarterly Journal.

IV.—Contributions to the Journal.

Articles submitted for publication must be typed in *duplicate*. With reference to Army Regulations, India, Volume II, paragraph 204 and King's Regulations, paragraph 509, action to obtain the sanction of His Excellency the Commander-in-Chief to the publication of any article in the Journal of the United Service Institution of India will be taken by the Committee.

Instructions for the preparation of drawings and plans for reproduction by lithography.

These should be in *jet* black. No washes or ribands of colour should on any account be used.

If it is absolutely necessary to use colour (and these are only permissible in line work or names) the following will reproduce photographically, *i.e.* :—

Dark red, dark orange, dark green. No other colour should on any account be used.

V.—Library Rules.

1. The Library is only open to members and honorary members of the United Service Institution of India. Members are requested to look upon books as not transferable to their friends.

2. No book shall be taken from the Library without making the necessary entry in the register. Members residing permanently or temporarily in Simla are requested to enter their

3. The United Service Institution of India is open all the year round—including Sundays—from 9 A.M. until sunset. Books may be taken out at any time provided Rule 2 is complied with.

4. A member shall not be allowed, at one time, more than three books or sets of books.

5. Papers, magazines, "works of reference" or books marked "Not to be taken away," or noted as "Confidential" may not be removed.

6. No particular limit is set as to the number of days for which a member in Simla may keep a book, the Council being desirous of making the library as useful as possible to members; but if after the expiration of a fortnight from date of issue it is required by any other member it will be re-called.

7. Applications for books from members at out-stations are dealt with as early as possible, and books are despatched per Registered V.-P. P. They must be returned carefully packed per Registered Parcel Post within one month of date of issue, or application made for permission to retain them for a further period. This will always be granted unless the book is required by another member.

8. If a book is not returned at the end of four months, it must be paid for without the option of return, if so required by the Executive Committee.

9. Lost and defaced books shall be replaced at the cost of the member to whom they were issued. In the case of lost books which are out of print the value shall be fixed by the Executive Committee, and the amount, when received, spent in the purchase of a new book.

10. The issue of a book under these rules to any member implies the latter's compliance with the rules, and the willingness to have them enforced, if necessary, against him.

11. A list of all books presented and purchased, and also a list of books useful to members studying for the Staff College and Promotion Examinations, will be found under Secretary's Notes in the quarterly issue of the U. S. I. Journal. Members are invited to note any books which they think might with advantage be procured for the Institution.

12. Members are invited to contribute presents of books, maps, and photographs of naval and military interest. These may be addressed to the Secretary, U. S. I. of India, Simla. They will be duly acknowledged.

VI.—Library Catalogue.

The new catalogue completed to 31st March 1924 is now available. Price Rs. 3-8-0 or postage paid Rs. 3-14-0.

VII.—Gold Medal Prize Essay Competition, 1925-26.

The Council have chosen the following subjects for the Gold Medal Essay for 1925-26 :—

- (i) The effect of an efficient enemy air force on our strategy, tactics and communications if engaged in a major war on or beyond the N.-W. Frontier of India.
- (ii) Bearing in mind the responsibility of the British Government for the well being of the Empire as a whole, discuss the progressive steps to be taken to create an Indian Army commanded, trained and administered by Indians, and capable of affording that support to a self governed India without which she will be unable to take her place in the Empire on terms of co-partnership.

The following are the conditions of the competition :—

1. The competition is open to all gazetted officers of the Civil Administration, the Royal Navy, Army and Royal Air Force or Auxiliary Forces who are members of the U. S. I. of India.
2. Essays must be printed or type-written and submitted in triplicate.
3. When a reference is made to any work, the title of such work is to be quoted.
4. Essays are to be strictly anonymous. Each must have a motto and, enclosed with the essay, there should be sent a sealed envelope with the motto written on the outside and the name of the competitor inside.
5. Essays will not be accepted unless received by the Secretary on or before the 30th June 1926.
6. Essays will be submitted for adjudication to three judges chosen by the Council. The decisions of the three judges will be submitted to the Council, who will decide whether the Medal is to be awarded and whether the essay is to be published.
7. The name of the successful candidate will be announced at a Council Meeting to be held in September or October 1926,

8. All essays submitted are to become the property of the United Service Institution of India absolutely and authors will not be at liberty to make any use whatsoever of their essays without the sanction of the Council.
9. Essays should not exceed 15 pages of the size and style of the Journal exclusive of any appendices, tables or maps.

By order of the Council,

E. J. ROSS, MAJOR,

Secretary, U. S. I. of India.

SIMLA :

1st October 1925.

VIII.—Army List pages.

The U. S. I. is prepared to supply members and units with manuscript or type-written copies of Indian Army List pages, at the rate of Rs. 2 per manuscript or type-written page.

IX.—

Books Presented.

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
1. Studies in European Co-operation, Vol II. (Presented by Superintendent, Government Printing, Lahore.)	1925	C. F. Strickland.
2. W a z i r i s t a n , 1919-1920. (Presented by Oxford University Press, Bombay).	1925	Lt.-Col. H. de Watteville.
3. History of the Canadian Forces, 1914-1919, Medical Services. (Presented by Department of National Defence, Ottawa, Canada).	1925	Sir Andrew Macphail.
4. With Lawrence in Arabia ... (Presented by Publishers, Hutchinson and Co., London.)	...	Lawell Thomas.
5. Promotion' E x a m i n a t i o n Report. (Presented by Director of Staff Duties, War Office.)	1925	

<i>Title.</i>	<i>Published.</i>	<i>Author.</i>
6. Military Report on the Bombay District. (Presented by General Staff, India.)	1925	
7. Report on Collective Training. (Presented by General Staff, India.)	1924-25	
8. British Light Infantry in the 18th Century. (Presented by Hutchinson & Co., London.)	1925	Col. J. F. C. Fuller.
9. An account of the battle of Liao-Yang. (Presented by Gale and Polden, London.)	n. d.	Maj.-Gen. Sir W. D. Bird.
10. 14th Punjab Regiment Year Book. (Presented by the 14th Punjab Regiment.)	1925	Maj.-General L. C. Dunsterville.
11. Military Report on the Presidency and Assam District. (Presented by General Staff in India.)	1922	

Books Purchased.

1. Memories of forty-eight years' service.	1925	General Sir Horace Smith Dorrien.
2. Our future in the Air	... 1922	Brig-General P.R.C. Groves.
3. Wireless—Popular and Concise	...	Lt.-Col. C. G. Chetwode Crawley.
4. The Statesman's Year-Book	... 1925	

Book on Order.

Robert E. Lee, The Soldier	... 1925	Maj.-Gen. Sir F. Maurice.
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Sale of Periodicals.

This Institution offers the following periodicals to members on sale for twelve months—1st January to 31st December 1926. The papers will be sold to the members submitting the highest bids by 31st December 1925.

Each issue of the periodicals will be sent to the purchaser as soon as the next issue arrives in Simla. In the case of purchasers in Simla, delivery will be free, otherwise postage will be charged.

English Publications.

<i>Title.</i>	<i>Published.</i>	<i>Cost per copy, new.</i>
		<i>s. d.</i>
1. The Review of Reviews ...	Monthly	... 1 0
2. The Cavalry Journal ...	Quarterly	... 5 0
3. The Asiatic Review ...	Do.	... 5 0
4. The Royal Engineer's Journal	Do.	.. 5 0
5. The Fighting Forces ...	Do.	... 5 0
6. The British Empire Review ...	Do.	... 0 6
7. The Nineteenth Century and after.	Monthly	... 3 0
8. The Navy	Do.	... 0 6
9. The Empire Review ...	Do.	... 2 0
10. The Geographical Journal ...	Do.	... 2 0
11. The United Empire ...	Do.	... 1 0
12. The Journal of R.A.M. Corps...	Do.	... 2 0
13. Blackwoods Magazine ...	Do.	... 2 6
14. The Aeroplane ...	Weekly	... 0 6
15. Journal of the Royal Artillery	Quarterly	... 5 0
16. Monthly Notices of the Royal Astronomical Society.	Monthly	... 4 0
17. The Royal Army Service Corps	Quarterly	... 2 6
18. The Journal of the R.A.S. Corps	Monthly	... 0 7
19. The Export and Commercial In- telligence World.	Do.	.. 1 0
20. The World's Health ...	Do.	... 0 6

American Publications.

		<i>s. c.</i>
1. The National Geographical Magazine.	Monthly	... 0 50
2. The Canadian Defence ...	Quarterly	... 1 50
3. Coast Artillery Journal ...	Monthly	... 0 50
4. Foreign Affairs	Quarterly	... 1 25
5. Infantry Journal	Monthly	... 0 50
6. Journal of the Franklin Ins- titute.	Monthly	... 0 60
7. Army and Navy Journal ...	Weekly	... 0 20
8. The Cavalry Journal ...	Quarterly	... 0 65

Foreign Publications.

<i>Titles.</i>	<i>Published.</i>
1. Revue Militaire Suisse	... Monthly.
2. L'Afrique Francaise	.. Do.
3. Bulletin Belge des sciences Militaires.	Do.
4. Alere Flammam ...	... Do.
5. Memorial de Artilleria (Spanish)	Do.

X—Pamphlets.

The following are available for sale on application to the Secretary :—

- (a) British and Indian Road Space Table (separately). Price as. 8 each, plus postage. It is suggested that these may be useful for staff rides, etc.
- (b) Diagram of Ammunition Supply (India), Price as. 4, plus postage.
- (c) Skeleton Diagram of Signal Communications of a Division. Price as. 6, plus postage.
- (d) Home War Establishment Tables (provisional). Price Re. 1-4-0 per copy, plus postage.

XI.—Schemes.

The following schemes based on lectures given at the course for officers studying for the Staff College Entrance Examination, are now available for sale, on application to the Secretary :—

- (a) Mountain Warfare (with four problems). Price Rs. 4, plus postage.
- (b) Administration (with one problem). Price Rs. 2, plus postage.
- (c) Artillery (with one problem). Price Rs. 2, plus postage.

To save expense to officers, maps, other than sketch maps, are not being supplied by the Institute. It is thought that the maps required will be readily obtainable by students.

These are for (a) Survey of India maps of Waziristan and Baluchistan, and for (b) and (c) Map 1/100,000 Rheims (1st Training, for War Paper. Staff College Entrance Examination, 1924).

In addition three Tactical Schemes suitable for Promotion Examination are available. (Price Rs. 5 each, with maps).

(d) Captain to Major—2 Schemes.

(e) Lieut. to Captain—1 Scheme.

Other Schemes are in preparation.

United Service Institution of India.

Prize Essay Gold Medalists.

(With rank of Officers at the date of the Essay.)

- 1872.. ROBERTS, Lieut.-Col. F. S., v.c., C.B., R.A.
- 1873.. COLQUHOUN, Capt. J. S., R.A.
- 1874.. COLQUHOUN, Capt. J. S., R.A.
- 1879.. St. JOHN, Maj. O. B. C., R.E.
- 1880.. BARROW, Lieut. E. G., 7th Bengal Infantry.
- 1882.. MASON, Lieut. A. H., R.E.
- 1883.. COLLEN, Maj. E. H. H., s.c.
- 1884.. BARROW, Capt. E. G., 7th Bengal Infantry.
- 1887.. YATE, Lieut. A. C., 27th Baluch Infantry.
- 1888.. MAUDE, Capt. F. N., R.E.
YOUNG, Maj. G. F., 24th Punjab Infantry (specially awarded a silver medal).
- 1889.. DUFF, Capt. B., 9th Bengal Infantry.
- 1890.. MAGUIRE, Capt. C. M., 2nd Cav., Hyderabad Contingent.
- 1891.. CARDEW, Lieut. F. G., 10th Bengal Lancers.
- 1893.. BULLOCK, Maj. G. M., Devonshire Regiment.
- 1894.. CARTER, Capt. F. C., Northumberland Fusiliers.
- 1895.. NEVILLE, Lieut.-Col. J. P. C., 14th Bengal Lancers.
- 1896.. BINGLEY, Capt. A. H., 7th Bengal Infantry.
- 1897.. NAPIER, Capt. G. S. F., Oxfordshire Light Infantry.
- 1898.. MULLALLY, Maj. H., R.E.
CLAY, Capt. C. H., 43rd Gurkha Rifles (specially awarded a silver medal).
- 1899.. NEVILLE, Col. J. P. C., s.c.
- 1900.. THUILLIER, Capt. H. F., R.E.
LUBBOCK, Capt. G., R.E. (specially awarded a silver medal).
- 1901.. RANKEN, Lieut.-Col. G. P. P., 46th Punjab Infantry.
- 1902.. TURNER, Capt. H. H. F., 2nd Bengal Lancers.
- 1903.. HAMILTON, Maj. W. G., D.S.O., Norfolk Regiment.
BOND, Capt. B. F. G., R.E. (specially awarded a silver medal).
- 1904.. MACMUNN, Maj. G. F., D.S.O., R.F.A.
- 1905.. COCKBRILL, Maj. G. K., Royal Warwickshire Regiment.
- 1907.. WOOD, Maj. E. G. M., 99th Deccan Infantry.
- 1908.. JEUDWINE, Maj. H. S., R.A.
- 1909.. MOLYNEUX, Maj. E. M. J., D.S.O., 12th Cavalry.
ELSMIE, Maj. A. M. S., 56th Rifles, F. F. (specially awarded a silver medal).
- 1911.. Mr. D. PETRIE, M.A., Punjab Police.
- 1912.. CARTER, Maj. B. C., The King's Regiment.
- 1913.. THOMSON, Maj. A. G., 58th Vaughan's Rifles (F.F.).
- 1914.. BAINBRIDGE, Lieut.-Col. W. F., D.S.O., 51st Sikhs (F.F.).
NORMAN, Maj. C. L., M.V.O., Q.V.O., Corps of Guides (specially awarded a silver medal).
- 1915.. No Award.
- 1916.. CRUM, Maj. W. E., v.d., Calcutta Light Horse.
- 1917.. BLAKER, Maj. W. F., R.F.A.
- 1918.. GOMPERTZ, Capt. A. V., M.C., R.E.
- 1919.. GOMPERTZ, Capt. M. L. A., 108th Infantry.
- 1920.. KEEN, Lt.-Col. F. S., D.S.O., 2/15th Sikhs.
- 1921.. No Award.
- 1922.. MARTIN, Maj. H. G., D.S.O., O.B.E., R.F.A.
- 1923.. KEEN, Colonel F. S., D.S.O., I.A.
- 1924.. No award.
- 1925.. No Award.

MacGREGOR MEMORIAL MEDALS.

1. The MacGregor Memorial Medal was founded in 1888 as a memorial to the late Major-General Sir Charles MacGregor. The medals are awarded for the best military reconnaissances or journeys of exploration of the year.

2. The following awards are made annually in the month of June:—

(a) For officers—British or Indian—silver medal.

(b) For soldiers—British or Indian—silver medal, with Rs. 100 gratuity.

3. For specially valuable work a gold medal may be awarded in place of one of the silver medals, or in addition to the silver medals, whenever the administrators of the fund deem it desirable. Also the Council may award a special additional silver medal, without gratuity, to a soldier, for special good work.

4. The award of medals is made by His Excellency the Commander-in-Chief as Vice-Patron, and the Council of the United Service Institution who were appointed administrators of the Fund by the MacGregor Memorial Committee.

5. Only officers and soldiers belonging to the Army in India (including those in civil employ) are eligible for the award of the medal.*

6. The medal may be worn in uniform by Indian soldiers on ceremonial parades, suspended round the neck by the ribbon issued with the medal.

Note.

(i) Personal risk to life during the reconnaissance or exploration is not a necessary qualification for the award of the medal; but in the event of two journeys being of equal value, the man who has run the greater risk will be considered to have the greater claim to the reward.

(ii) When the work of the year has either not been of sufficient value or has been received too late for consideration before the Council Meeting, the medal may be awarded for any reconnaissance during previous years considered by His Excellency the Commander-in-Chief to deserve it.

MacGregor Memorial Medalists.

(With rank of officers and soldiers at the date of the Award.)

1889.. BELL, Col. M. S., V. C., R.E. (specially awarded a gold medal).

1890.. YOUNGHUSBAND, Capt. F. E., King's Dragoon Guards.

* N.B.—The terms "officer" and "soldier" include those serving in the British and Indian armies and their reserves, also those serving in Auxiliary Forces such as the Indian Auxiliary and Territorial Forces and Corps under Local Governments, Frontier Militia, Levies and Military Police, also all ranks serving in the Imperial Service Troops.

MacGregor Memorial Medalists—(*contd.*).

- 1891.. SAWYER, Major H. A., 45th Sikhs.
RAMZAN KHAN, Havildar, 3rd Sikhs.
- 1892.. VAUGHAN, Capt. H. B., 7th Bengal Infantry.
JAGGAT SINGH, Havildar, 19th Punjab Infantry.
- 1893.. BOWER, Capt. H., 17th Bengal Cavalry (specially awarded a gold medal).
FAZALDAD KHAN, Dafedar, 17th Bengal Cavalry.
- 1894.. O'SULLIVAN, Major G. H. W., R.E.
MULL SINGH, Sowar, 6th Bengal Cavalry.
- 1895.. DAVIES, Capt. H. R., Oxfordshire Light Infantry.
GANGA DYAL SINGH, Havildar, 2nd Rajputs.
- 1896.. COCKERILL, Lieut. G. K., 28th Punjab Infantry.
GHULAM NABI, Sepoy, Q. O. Corps of Guides.
- 1897.. SWAYNE, Capt. F. J. F., 10th Rajput Infantry.
SHAHZAD MIR, Dafedar, 11th Bengal Lancers.
- 1898 WALKER, Capt. H. B., Duke of Cornwall's Light Infantry
ADAM KHAN, Havildar, Q. O. Corps of Guides.
- 1899.. DOUGLAS, Capt. J. A., 2nd Bengal Lancers.
MIHR DIN, Naik, Bengal Sappers and Miners.
- 1900.. WINGATE, Capt. A. W. S., 14th Bengal Lancers.
GURDIT SINGH, Havildar, 45th Sikhs.
- 1901.. BURTON, Maj. F. B., 17th Bengal Lancers.
SUNDAR SINGH, Colour Havildar, 31st Burma Infantry.
- 1902.. RAY, Capt. M. R. E., 7th Rajput Infantry.
TILBIE BHANDARI, Havildar, 9th Gurkha Rifles.
- 1903.. MANIFOLD, Lieut.-Col. C. C., I.M.S.
GHULAM HUSSAIN, Lance-Dafedar, Q. O. Corps of Guides.
- 1904 FRASER, Capt. L. D., R.G.A.
MOGHAL BAZ, Dafedar, Q. O. Corps of Guides.
- 1905.. RENNICK, Maj. F., 40th Pathans (specially awarded gold medal).
MADHO RAM, Havildar, 8th Gurkha Rifles.
- 1906.. SHAHZADA AHMAD MIR, Risaldar, 36th Jacob's Horse.
GHAFUR SHAH, Lance-Naik, Q. O. Corps of Guides Infantry.
- 1907.. NANGLE, Capt. M. C., 92nd Punjabis.
SHEIKH USMAN, Havildar, 103rd Mahratta Light Infantry.
1908. GIBBON, Capt. C. M., Royal Irish Fusiliers.
MALANG, Havildar, 56th Punjab Rifles.
- 1909.. MUHAMMAD RAZA, Havildar, 106th Pioneers.

MacGregor Memorial Medalists—(concl'd.).

- 1910.. SYKES, Maj. M., c.m.g., late 2nd Dragoon Guards (specially awarded a gold medal).
 TURNER, Capt. F. G., R.E.
 KHAN BAHADUR SHMR JUNG, Survey of India.
- 1911.. LEACHMAN, Capt. G. E., The Royal Sussex Regiment.
 GURMUKH SINGH, Jemadar, 93rd Burma Infantry.
- 1912.. PRITCHARD, Capt. P. P. A., 83rd Wallahjabad Light Infantry (specially awarded a gold medal).
 WILSON, Lieut. A. T., c.m.g., 32nd Sikh Pioneers.
 MOHIBULLA, Lance-Dafedar, Q. V. O. Corps of Guides.
- 1913.. ABBAY, Capt. B. N., 27th Light Cavalry.
 SIRDAR KHAN, Sowar, 39th (K.G.O.) Central India Horse.
 WABATONG, Havildar, Burma Military Police (specially awarded a silver medal).
- 1914.. BAILEY, Capt. F. M., I.A. (Political Department).
 MORSHEAD, Capt. H. T., R.E.
 HAIDAR ALI, Naik, 106th Hazara Pioneers.
- 1915.. WATERFIELD, Capt. F. C., 45th Rattray's Sikhs.
 ALI JUMA, Havildar, 106th Hazara Pioneers.
- 1916.. ABDUR RAHMAN, Naik, 21st Punjabis.
 ZARGHUN SHAH, Havildar, 58th Rifles (F. F.) (specially awarded a silver medal).
- 1917.. MIAN AFRAZ GUL, Sepoy, Khyber Rifles.
- 1918.. NOEL, Capt. E. W. C. (Political Department).
- 1919.. KEELING, Lt.-Col. E. H., m.c., R.E.
 ALLA SA, Jemadar, N.-E. Frontier Corps.
- 1920.. BLACKER, Capt. L. V. S., Q. V. O. Corps of Guides.
 AWAL NUR, C. Qm. Havildar, 2nd Bn., Q. V. O. Corps of Guides.
 (Special gratuity of Rs. 200.)
- 1921.. HOLT, Major A. L., Royal Engineers.
 SHMR ALI, Sepoy No. 4952, 106th Hazara Pioneers.
- 1922.. ABDUL SAMAD SHAH, Capt., o.b.e., 31st D. C. O. Lancers.
 NUR MUHAMMED, Lance-Naik, 1st Guides Infantry, F. F.
- 1923.. BRUCE, Capt. J. G., 2/6th Gurkha Rifles.
 SOHBAT, Head Constable, N.-W. F. Police.
 HARI SINGH THAPA, Survey Department.
- 1924.. HAVILDAR RAHMAT SHAH, N.-W. F. Corps.
 NAIK GHULAB HUSSAIN, N.-W. F. Corps.
- 1925.. SPEAR, Captain C. R., 5/13th Frontier Force Rifles.
 JABBAR KHAN, NAIK, 5/13th Frontier Force Rifles.

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EDITORIAL.

We have recently been criticised in certain quarters on the grounds that many of the articles which we publish do not agree with official doctrine on the question under discussion. It will save time if we at once plead guilty on facts, and confine ourselves to a plea of justification.

In the first place, the chief object of the Journal is to promote thought and discussion on military subjects. If our articles are to consist of rechauffées of official opinion, served up in a slightly different form, the first object is at once defeated—there is an end of discussion, of original thought and of progress. We pre-suppose, moreover, that readers of the Journal are already acquainted with the official manuals in which will be found the official doctrine set forth more precisely, more clearly, and at greater length than would be possible in the pages of the Journal.

We hold the view very strongly that a knowledge of the official manuals is a necessary, but elementary part of the study of the art of leadership in war. A leader of troops in war is, in some respects, very much in the position of the owner of a motor car. The latter, when he purchases his car, receives from the manufacturer an elementary handbook, setting forth the first principles on which his particular model should be run and maintained. This is his Field Service Regulations. The first thing the new owner must do is to study and absorb the principles laid down in the book. When he has thoroughly digested them, and has learnt to apply them practically, he is in a fair way to become a driver. When the conditions are favourable, and help is at hand, he can probably keep his car running smoothly and continuously.

MacGregor Memorial Medalists—(conc'

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the first difficulty with which the leader finds himself
conducting operations, is the fact that he is compelled
or the other principles of war. He knows that con-
is a basic principle, yet administrative considerations
him to disperse his force. He realises the importance of
decision and speedy action, yet he has also studied the
necessity for careful reconnaissance and of obtaining the completest
possible information of the enemy's strength and dispositions be-
fore drawing up a plan. In the midst of all these conflicting
factors he can only arrive at a correct decision when he has
studied, not only the doctrines themselves, but their relative values,
and, above all, the essential and basic considerations on which all
of them are founded.

In our opinion almost the most pitiful attitude which the
soldier can adopt is "That is what the manual says, further dis-
cussion is useless." This is the sort of thing which cramps
original thought and numbs the imagination. To accept it is to
admit that in war we require automatic machines, not leaders.
The enunciation of an official doctrine should be the beginning,
not the end of discussion, for the difficulty lies, not in memorising
the conclusion, but in translating it into action. Under the

circumstances of war a doctrine can only be successful if a leader who knows the essential and basic considerations of war it is founded.

Every simple illustration showing when an organisation must be departed from. The Vickers gun is the heart and parcel of the battalion to which it is attached. It is not to break up existing organisations on a tactical principle. It cannot, however, be used by a leader who concentrates his machine guns in one place, which is wrong.

The situation on the Tigris

in 1917. The Turks on

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Sir Raleigh Egerton, was

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and of so making untenable the position

posts further down the river. One of the chief

making this operation a success was a great concentration

of machine guns which swept the further bank of the

river, and made Turkish movement, and counter-attack against

the covering force, well nigh possible.

Now suppose a similar operation to be in progress with our present organisation. I do not think that we would blame a leader who took every possible machine gun away from each battalion in his division with the object of obtaining a great and controlled volume of covering fire. We would certainly label him as unfit to command if he did not, on the score of it being contrary to the normal organisation. But yet to do so is to violate an official doctrine. The fact is that such doctrines are enunciated as general guides in normal circumstances. The leader who fails to depart from them when the occasion demands it is often as culpable as he who errs from ignorance alone.

The same arguments apply to the use of Lewis guns in Frontier Warfare—a subject which has been very fully discussed in recent numbers of our Journal. The Lewis gun is a platoon weapon. To use it otherwise is to violate both organisation and the chain of command, and to suffer all the disadvantages which that entails. Yet it is impossible to say that a commander is never justified in taking two or even more of his Lewis guns away from their platoons and using them for some special tactical purpose. Before doing so, however, he must clearly recognise that his action can only be justified to obtain a definite tactical

On the other hand, a person with this limited amount of training can, by no stretch of the imagination, be classified as a real expert. If he is to keep his car running under adverse circumstances, in an unfavourable climate, or on really bad roads, he must have a far more complete training. It is no good his knowing that if he uses a particular lever a certain result will follow. He must have gone far deeper than this and must completely understand the actions and reactions which give the required result. Only when he has done so will he be in a position to remedy defects as they come to light, or to make small adjustments to suit the particular requirements of the moment.

Very similar is the situation of a leader in war. A knowledge of the official doctrine on any point is essential to him, but a complete knowledge of Field Service Regulations does not make a leader. In order to apply doctrines, to get the best results from them, and to modify them where circumstances demand, it is essential that he must have studied deeply, and for himself, the consideration on which they are based. He must be in a position to give full weight to the arguments for them, and against them, and only then will he be in a position to apply them correctly under the ever changing conditions of war.

Almost the first difficulty with which the leader finds himself faced when conducting operations, is the fact that he is compelled to violate one or the other principles of war. He knows that concentration is a basic principle, yet administrative considerations compel him to disperse his force. He realises the importance of rapid decision and speedy action, yet he has also studied the necessity for careful reconnaissance and of obtaining the completest possible information of the enemy's strength and dispositions before drawing up a plan. In the midst of all these conflicting factors he can only arrive at a correct decision when he has studied, not only the doctrines themselves, but their relative values, and, above all, the essential and basic considerations on which all of them are founded.

In our opinion almost the most pitiful attitude which the soldier can adopt is "That is what the manual says, further discussion is useless." This is the sort of thing which cramps original thought and numbs the imagination. To accept it is to admit that in war we require automatic machines, not leaders. The enunciation of an official doctrine should be the beginning, not the end of discussion, for the difficulty lies, not in memorising the conclusion, but in translating it into action. Under the

changing circumstances of war a doctrine can only be successfully applied by a leader who knows the essential and basic considerations on which it is founded.

Let us take a very simple illustration showing when an official doctrine should be departed from. The Vickers gun is now a battalion weapon, part and parcel of the battalion to which it belongs. We all know that to break up existing organisations is to violate a normal tactical principle. It cannot, however, be argued with reason that a leader who concentrates his machine guns for a particular operation is always wrong.

Many of our readers will recollect the situation on the Tigris in the neighbourhood of Kut in February 1917. The Turks on the right bank had been defeated and practically destroyed, and to the 14th Indian Division, under Sir Raleigh Egerton, was allotted the task of forcing the passage of the river in the face of organised opposition, and of so making untenable the position of the Turkish troops further down the river. One of the chief factors in making this operation a success was a great concentration of machine guns which swept the further bank of the river, and made Turkish movement, and counter-attack against the covering force, well nigh possible.

Now suppose a similar operation to be in progress with our present organisation. I do not think that we would blame a leader who took every possible machine gun away from each battalion in his division with the object of obtaining a great and controlled volume of covering fire. We would certainly label him as unfit to command if he did not, on the score of it being contrary to the normal organisation. But yet to do so is to violate an official doctrine. The fact is that such doctrines are enunciated as general guides in normal circumstances. The leader who fails to depart from them when the occasion demands it is often as culpable as he who errs from ignorance alone.

The same arguments apply to the use of Lewis guns in Frontier Warfare—a subject which has been very fully discussed in recent numbers of our Journal. The Lewis gun is a platoon weapon. To use it otherwise is to violate both organisation and the chain of command, and to suffer all the disadvantages which that entails. Yet it is impossible to say that a commander is never justified in taking two or even more of his Lewis guns away from their platoons and using them for some special tactical purpose. Before doing so, however, he must clearly recognise that his action can only be justified to obtain a definite tactical

advantage which will definitely outweigh the disorganisation which is certain to follow. His capacity for forming a correct judgment in the matter will depend on his skill as a leader, and on the standard of the training which he has received. The higher the standard of training, and the deeper the standard of military study, the greater the latitude which it is safe to allow to subordinate officers in this and in similar matters.

* * * *

The word raid has an almost uncanny fascination for the great majority of our amateur strategists, especially those who love to dabble in the future and discuss the potentialities of modern weapons, without undertaking the labour involved in the study of the practical limitations to their use. Such writers love to picture great numbers of swift moving tanks, escorting fleets of armoured infantry carriers, rushing into the hostile country to paralyze hostile "nerve centres." They paint vivid pictures of the terror and confusion of the inhabitants, the clouds of smoke, the chaos of flames and explosions as the depôts and bridges go up, and the general confusion and paralysis of the enemy leaders.

Very few of them, however, have tried to study the practical difficulties in the way of such operations, or the very definite danger into which their fascination is likely to draw the too optimistic leader. They are apt to forget that the enemy is a person like unto ourselves, and has probably been equally well trained to seek any opportunity which offers for a successful offensive.

Whatever new weapons be devised, and whatever be their power and mobility, one principle will always hold good in war. Final victory will go to that side which is victorious at the decisive point. No side issue and no minor success can atone for failure there.

Raids are tactically and strategically unsound in principle because they imply dissipation of force. A raiding force is a detachment, and, normally, a detachment within striking distance of the enemy. It therefore gives an opportunity of being defeated in detail. If, moreover, the objective of the raid is really worth attacking, the enemy, if he has any sense at all, will have taken reasonable steps to protect it. To insure success, therefore, the raiding party must be strong, and will, in fact, have to include a high proportion of the most mobile and most valuable weapons. In the meantime the main force, wherever it may

happen to be, will be correspondingly reduced in fighting power of the most important kind.

Whatever be the developments of mechanical warfare, few of us can doubt that, at least during our life-time, armies will consist of a high proportion of slow-moving troops, and a low proportion of fast-moving troops. Financial considerations must, for many years to come, prevent any other proportions. Mechanical vehicles will, no doubt, to a large extent undertake and enlarge on the present duties of cavalry, but the general effect will be the same. We will have a slow-moving force of some kind representing our present infantry, and a mobile force representing our present cavalry. A force in the future deprived of its more mobile weapons will be in the same, if not in a worse condition, than a force in the past deprived of its cavalry. If we are wise then, when we attempt to value raids by mechanical weapons in the future, we will begin by studying the effects of similar operations by cavalry in the past.

It is generally admitted that the best examples of genuine cavalry raids took place during the American Civil War, when they were freely employed by both sides. J. E. B. Stuart, who commanded the Confederate cavalry during the decisive years, was their greatest exponent. Raiding was, indeed, one of his favourite occupations, and he thought little of riding completely round the Federal armies. He did this on several occasions with entire success; he burnt, and destroyed, and scattered dismay in his path, and his losses on each occasion were practically negligible. But the final result is what matters in war, so let us examine the effect of his raids on the final issue of each campaign.

After the battle of of Gaines Mill, Lee despatched him with practically all his available cavalry to destroy the York River Railway, which was thought to be the Federal main line of communication. Stuart was more than successful, and he achieved his object with great speed. In the meantime, however, Lee was left with insufficient mounted troops to carry out an effective pursuit, and it is safe to say that the absence of the Confederate cavalry prevented Lee from winning a really decisive success.

Again at Chancellorsville, a raid by the Northern cavalry was similarly abortive. Hooker, when moving to attack Lee, despatched nearly the whole of his cavalry to cut his opponent's communications. He left himself with insufficient mounted troops to carry

out his local protection, and, as a result, his right wing was surprised and crushed, and his whole force was compelled to retreat. It should be noted, too, that the temporary cutting of his line of communication by an insufficient force, had little effect on paralyzing the mobility of a determined leader like Lee.

But perhaps the most striking incident of all occurred at Gettysburg, where the fate of the whole war hung for three long days in the balance. Lee, immediately after he crossed the Potomac with a view to threatening Washington, despatched Stuart with the bulk of his cavalry to raid the Federal rear. Stuart met with perfect success, he destroyed a large amount of material and created a great deal of consternation. But let us note the effects on the final decision.

In the first place Stuart's raid had practically no effect whatever on the Federal operations. It is safe to say that it failed utterly to effect their movements and hardly reduced their force at the decisive point by one man or one gun. On Lee's force, however, the result was very different. For four of the most important and decisive days of the campaign he was left entirely without information of the movements of the Federal Army. He, in fact, fought the rest of the campaign blind, and he was, in consequence, surprised both strategically and tactically. Opportunity after opportunity was lost through lack of information, and finally he was practically forced to fight a pitched battle against a far superior force. It has been said that Stuart's absence on this raid lost the war to the Confederates. This may be an exaggeration, but certain it is that the Confederates were never nearer to their independence than they were during these few days in June 1863.

These few examples, I think, sufficiently point to the danger of committing a high proportion of mobile troops to an operation unconnected with the major issue. In modern war, where mechanical weapons are available, it looks as though the danger will be still greater. In the first place the temptation is increased. A general has, in his tanks, weapons probably far superior, in suitable country, to cavalry for raiding. They are swifter moving, and have a much greater radius of action. They can be rendered practically self-supporting as regards supplies for a considerable period, while their offensive and defensive power is infinitely greater. It will often require, in fact, all a leader's self-control to refuse to utilise them for raiding purposes when a favourable objective appears to offer.

But, if the chief argument against using cavalry in this way lies in the weakness caused at the decisive point, it applies with still greater force to tanks, for tanks are of far greater value than cavalry when the time comes for the final decision. They can carry out practically all the normal duties of cavalry, while they can, in addition, take their place in effecting the final decision on the actual battlefield, where they will be probably the deciding factor in the infantry struggle. A leader fighting for a decision in the absence of his cavalry fights blinded and without his sense of touch—a leader compelled to fight without his tanks has lost his physical strength as well. Superiority in tanks on the battlefield is so important that a leader can hardly ever be justified in running the risk of being compelled to fight in their absence.

It must not be thought that we intend to suggest that a leader should not take every advantage of the mobility, fighting power, and radius of action of his more mobile weapons to strike at objectives which would be out of reach of non-mechanicalised troops. Far from it. Every advantage should be taken of their characteristics to bewilder the enemy, to out-manœuvre him, and so place him at a disadvantage.

Action of this nature is no sense a raid, but, so long as it will be effective in bringing about a favourable situation at the decisive point, it is a perfectly legitimate and sound operation of war. But an operation of this kind, so soon as it develops into an episode having no direct effect on the main decision, becomes not only objectionable, but definitely dangerous.

But, will argue our amateur strategists, when a leader sees an opportunity of striking a blow at the heart of the enemy's country which will paralyse his will or power to resist, surely he is justified in using his mechanical weapons for this purpose. Of course he is, but if—and the “if” is a very large one—the operation can achieve a decision, it is no longer a raid. It is a decisive operation and must be treated as such. In carrying it through there must be no half measures. If a decision is sought, it must be sought in such a manner that every available resource, every possible weapon, and every man is employed to further the chance of success.

It must be remembered too, that a country which possesses an “Achilles heel” of this nature, unless its leaders are suffering from general paralysis of the insane, will have so disposed its

main forces as to afford protection, direct or indirect, to this vital point. To attack it, therefore, it will be necessary previously to meet and overcome these forces in battle, and so we get back to the old principle that the first objective must be the enemy armed forces. This principle, we maintain, will hold good for all time, whether future wars be fought on land, in the air, on the sea, or on the bed of the ocean.

* * * * *

We publish in the current number of the Journal the first of a series of lectures on the battles of the Russo-Japanese War. These were delivered in 1914, shortly after a personal visit by our contributor to these battlefields. We hope, in publishing these papers to achieve two purposes. Firstly to assist students of this campaign by putting forwards points of view gained from a real and personal knowledge of the country, and secondly to refute the argument of which one hears too much these days, that, for the modern soldier, the study of military history should commence with the outbreak of the Great War.

These lectures were delivered before the Great War. The only alterations now made have been the correction of references so as to refer to the 1924 Edition of Field Service Regulations, and one or two very minor changes in the text to accord with present day nomenclature, yet there is not one lesson or one deduction to be found in them which does not hold good equally to-day.

The fact is that all military history has its lessons to teach the student who approaches it with sufficient intelligence to unearth the underlying principles, and imagination enough to make allowances for altered conditions. Where, for instance, could one find a better example of the principles of the organisation of a modern battlefield than in Wellington's dispositions at Waterloo? We find the Forward Zone, a series of defended posts, designed to absorb the first shock, and to break up the enemy's organisation; the Main Zone, just in rear of the ridge, well concealed and protected from artillery fire, in front of which the enemy's main attack was to be broken; and finally, the hidden reserves, ready to counter-attack and maintain the battle by an active and vigorous defence. Make a few allowances for the decreased range and volume of fire, and we find that the principles of the defence were exactly those taught by the experience of the Great War.

Study of this sort is practically important at the present time. Science is advancing by leaps and bounds, and the application of tactical principles must follow suit. Evolution is, in fact, taking place with tremendous rapidity, and the only sound method of forecasting probable lines of future evolution, is a careful and imaginative study of the course which it has followed in the past.

* * * * *

We regret to say that the Essays submitted this year for the gold medal were of a very disappointing standard—so much so that no medal and no monetary prize have been awarded. The most prominent fault lay in a lack of logical arrangement, while there was a tendency to lose sight of the point at an early stage. Competitors will be glad to learn, however, that their labours have not been altogether wasted, for several useful suggestions have been noted for future consideration by those concerned.

LECTURES ON THE MANCHURIAN BATTLEFIELDS—I.

Delivered by Lt.-Col. G. de S. Barrow (now Genl. Sir G. de S. Barrow, K.C.B., K.C.M.G., A.-D.-C.), at the Staff College, Quetta, in March 1914.

(These lectures have not been revised in any way, except to bring references to F. S. R. up to date with the 1924 Edition.)

PRELIMINARY REMARKS.

In the study of any particular war there are three tendencies against the influence of which one has to be continuously on one's guard, for otherwise the benefits derived from the study are unduly limited, and everything presents itself in a false medium. If one pursues one's study on the actual ground over which the operations took place, these tendencies become more instant than ever, as I have experienced when visiting the battlefields of the Franco-German War and recently those of the Russo-Japanese War. I do not think it will be out of place, therefore, if I preface my remarks on the Manchurian Battlefields with a reference to these three tendencies.

They are :—

(a) The tendency, if the war is a recent one, of looking on it as the first and the last lesson in strategy and tactics. It is not the first lesson because it only teaches us what has been taught by wars over and over again for thousands of years. It is not the last lesson because, in spite of this, there is something to be learnt from every war to follow, just as there is from this particular one. The first thing then to remember is that one must not expect to learn anything new, as regards principles, in this Russo-Japanese war. What it does do is to emphasize the eternal truth of the principles, and it is in this that we find its most important lesson.

The principles of war are like the principles of morality. You and I know as well as the Archbishop of Canterbury, or the Pope of Rome, what is right and what is wrong, but it is only a very few people who can invariably do what is right. There is a vast difference between "the knowing" and "the doing" of anything, and it does not at all follow that because one knows that, therefore, one can "Do". The first step, however, as Willeesen says "to the 'doing'

is the 'knowing'." The principles of war can be read up in half an hour. But to suppose that by this alone we shall be able to do the right thing in war is as absurd as to suppose that by reading the Ethics of Morality we can always do what is right in life and never do what is wrong. It is the application of the principles to concrete cases which is the difficult thing, and it is only when we can absorb these principles till they become a part of our system, as it were, that we can hope to act in accordance with them.

(b) The tendency to criticise adversely and destructively on insufficient data, and without grasping the fact that one cannot judge of any single act in war without taking into consideration a vast number of other acts, each of which has its bearing and influence on the others. Too often the man who was beaten acted like a fool; he was a fool, and there is the end of the matter. Why did he retreat when he might have held his ground? Why did he go to the right when he should clearly have gone to the left? Why did he not counter-attack at half past two, instead of waiting till quarter to three? Well, if we answer all these "Whys" by the simple conclusion that the man was a fool, and we could ourselves have done something else much better and which would have plainly given us the victory; if we answer it, I say, in this way, it means that we really do not understand anything about war, and all such criticism is waste of time and valueless. Criticism is necessary if we are to study at all, but it must be criticism of the right sort.

"In war, as in other branches of human energy, every part of the complete development of the human efforts employed, every intellectual operation which bears practical fruit, all the parts of the whole, are so closely connected with each other that there is no cause, however small, which does not produce effect continuously up to the close of the war and does not modify in some degree, the final result. There is no means, small or great, of which the force is not felt till all is over." (Clausewitz.) Without a proper comprehension of this fact, nine-tenths of our criticism of Russian strategy and of Kuropatkin's conduct of the operations is quite valueless.

(c) The tendency to regard each battle as an isolated act in war, whereas it only bears the same relation to the whole war as one chapter in a book does to the whole book. The chapter is nothing by itself and at the same time the meaning of the book may be entirely lost if the one chapter is missing. One cannot properly criticise the tactics of the opposing commanders without

taking into consideration a vast number of antecedent points, national characteristics, training, armament, organisation, strategy and the whole chain of events leading up to the setting of the pieces on the battlefield.

NANSHAN.

This battle was a soldiers' battle. There was no manoeuvring. It was sheer hammer and tongs. The Japanese to all intents and purposes kept no general reserve (only 3 battalions which became gradually absorbed in the attacking lines). The space was too narrow to permit of envelopment. The Russian defence occupied practically the whole width of the isthmus. In fighting the battle of Nanshan the Japanese were taking a bold strategical risk, and this necessitated bold tactics. Generally speaking you cannot have the one without the other (Marengo for instance). And so Oku threw in his whole strength from the first, trusting to Divisional Reserves to deal with any counter-strokes. And the advance was made, partly from training on German, or shall we say, European Continental methods, partly for want of deploying space, with lines so thick that, if adopted at Aldershot after the South African War, whole battalions and brigades would have been put out of action at the very start.

And the thing which strikes one most, as one stands on this battlefield, is the resolution of the Army Commander. With untried troops, troops which had not yet been put to the test, he ventured to make a frontal attack against an enemy, unshaken in moral, and holding a prepared position strongly fortified. And he made this attack in spite of the fact that the most recent experience and the consensus of contemporary opinion, as expressed in the military literature of the day was strongly opposed to such purely frontal attacks. And what is more remarkable still is that he made this attack without any possibility (with the exception I will allude to presently), of enlisting the element of surprise. Standing on the heights of Nanshan one can see the whole country before one as easily as one can see to the walls of this room, and one could count the attacking troops with as little difficulty as I can count you sitting before me now.

The question as to whether the attack would have succeeded, had the Russians used all their available resources, does not enter into the question. Oku's resolution remains. And the hardihood required to make the attack at this battle was much greater than that at later periods of the war, for of those unknown factors which always confront a Commander in the field, there was one which

was absent later on. His troops here were an uncertain quantity. Afterwards he knew that he could ask all things of them. He had 'faith' in his men, and there are times when to a Commander 'faith' is of more value than knowledge or reason.

As to the actual battle itself, it was a battle, one might say, of yesterday, rather than of to-day or to-morrow, as regards the extent of the arena and the purview of the Commander. The whole area embraced by the field is clearly visible to both attackers and defenders.

According to our Field Service Regulation, Vol. II, Sec. 69, para. 3, success in battle may be sought either by envelopment, or by a preparatory action, followed up by a decision which is forced by the employment of a large reserve.

At Nanshan, envelopment was out of the question because columns or troops cannot be marched across the sea. Why then did not Oku act in accordance with the second idea? There was practically no reserve (no striking force), there was no accumulation of force to drive home the attack at a specially selected point; there was no attempt to act in accordance with the idea laid down in Field Service Regulation, Vol. II, Sec. 69, p. 5. Was Oku right? Are our Field Service Regulations wrong? Let us not be blinded by Oku's success, for success in war covers a multitude of sins. The whole of Oku's force was deployed in equal strength against the entire front of the Russian position. The result of this was that the situation became extremely critical for the Japanese, and, had the Russians counter-attacked against the left of the 3rd Division, they would have had every chance of winning the day. The exceeding fear of the Japanese of some such counter-stroke so early in the day as 11 A.M. is proof enough of this. The three battalions originally held in reserve had already been absorbed, and when rumour, which in war is the boon companion of fear and apprehension, reported that the Russians were moving troops across Hand Bay in boats, two companies of Engineers and a squadron of cavalry, the only troops not already deployed, were hastily despatched to resist them. It is generally assumed that a Russian counter-stroke must have been delivered from across Hand Bay. I must say, however, that, looking at the ground, this was not my opinion. The Russians had 12 battalions which were kept out of the fight altogether. The reasons for this we need not go into now; they are discussed in most of the accounts of the War.

It is true that the development of a frontal counter-stroke is theoretically a most difficult operation; practically it will rarely

succeed and rarely be attempted unless it can be supported by a great mass of artillery and other mechanical aids. But, one can never be bound down by a definite ruling. The actual situation at the moment, the configuration of the ground, the condition of the enemy, are all factors governing the case. These 12 battalions were perfectly concealed from the Japanese by a spur running out from the rear of the position, their appearance would have come as a surprise, the direction of the counter-stroke from behind this spur would have brought them, if not against the flank, at any rate against the weakest point of the Japanese long, strung-out line, *viz.*, the extreme left: and if the right moment could have been seized, *i.e.*, when the attack had come to a stand-still, when there were no Japanese reserves left and every man had been "put in," and when the hostile artillery had scarcely a round remaining, these 12 fresh battalions, assisted as they could have been by a large number of guns, might well have secured a Russian victory.

My reason for entering into this question of a Russian counter-stroke is only for the purpose of pointing out the dangerous situation in which Oku's tactics had placed the Japanese.

Reconstructing the attack for a moment in accordance with our Field Service Regulations, we should get something like this. The 1st Division to attack the North front from the sea up to and including the salient, the 3rd Division to attack the East front, keeping a strong local reserve in rear of its left. These two Divisions could have furnished "Forward Bodies" and "Reserves" (Inf. Tr., II, S. 034-4 (i)) with extensions corresponding with those adopted later by the Japanese, and also according with our own ideas on the subject, while maintaining the requisite depth. The 4th Division to be the general reserve. The 4th Division would have been concealed in the wood North-West of Kinchow, brought up during the night (an easy manœuvre for troops trained to night work), and would have attacked the Russians at dawn of the following day. It must be remembered, however, that at this time the Japanese were not highly trained in night work.

This, and following battles, fought by Oku bear the stamp of a doctrine which has as its basis, deployment, envelopment and small reserves; and it seems to us that at Nanshan the doctrine was carried to an extreme. And this is the danger of all doctrines.

Important as it is to have a doctrine, in order to ensure method and unity of thought and combination, one must at the same time remember that a doctrine is not a principle, that it is

therefore not immutable, and that there will be occasions in war when it will be advisable to act contrary to the methods which have become stereotyped during peace training.

Following on Nanshan, in natural sequence, comes Port Arthur. And at Port Arthur, more than anywhere else, the evidences of war are apparent. The ruined redoubts, the approaches by sap, the confused masses of concrete, the remains of guns and gun-carriages, the Japanese parallels, all combine to make, even to-day, a living picture, easily reconstructed in the imagination, of the fierce scenes which were enacted on the grass-covered hills which surrounded the hiding place of the Russian Fleet.

Apart from technical details having reference to exact siting of the Russian forts, the lines followed by the Japanese approaches, the position of supporting batteries and so forth, which can only be considered on the actual ground, there are certain general points in connection with the attack and defence of this fortress which I now quote straight from the notes made at the time of my visit there—

- (a) The resisting power of modern constructed forts is enormous, no matter how conspicuous their siting may be. Artillery, however big the guns, and however heavy the fire, will not turn stout-hearted defenders out of them. Only the bayonet will do it. You may knock a fort into ruins with your shell, but you do not conquer it till your men have crossed the ditch and driven the defenders out in hand to hand conflict; and to enable them to do so they must first resort to a prolonged and painful course of sapping right up the glacis and through the counterscarp itself. If one substitutes modern entrenchments for the up-standing forts of 1904, this statement still holds good, as was abundantly proved during the Great War.
- (b) Most of the Russian redoubts and forts suffered, no doubt unavoidably, from a very serious defect. The ground fell away so steeply from the counterscarp that the Japanese were generally able to find a considerable amount of cover in dead ground at the foot of the glacis. Nevertheless, all these forts had to be approached painfully by the sap, and the sapping at point blank range must have been terribly trying work.

- (c) It is very much a question whether the Russians should not have resorted more frequently to local counter-attacks. Time and again the Japanese, in small numbers, were hanging on by their eye-lids to the dead ground they had gained at the foot of the glacis; food and ammunition could scarcely reach them except under cover of darkness; their nerves, however strong, must have been in an extreme state of tension. Some determined counter-attacks, especially if delivered at night, would have had very great effect. Even when not always successful, the mere fact of attacks being constantly made, and therefore always imminent, would have intensified the strain on the Japanese, raising it almost to breaking point.
- (d) The question of a general sortie also requires consideration, and resolves itself into the following points:—
- (i) Was the garrison of Port Arthur sufficiently strong to admit of a general sortie, and, if so, in what strength?
 - (ii) Was it advisable for strategical as well as tactical reasons to attempt such a sortie?
 - (iii) What would have been the most favourable date for executing it?
 - (iv) Against what portion of the investing line should it have been directed?
- (e) One of the things that strikes one most about Port Arthur is the smallness and badness of the harbour. Beyond maintaining the sea-batteries captured from the Russian the Japanese do not seem to be taking any steps to defend it. Its only value at the time of the war lay in the fact that it contained the Russian fleet; its only value now lies in the prestige gained by its occupation and the convenience afforded by the Russian buildings. The Governor of Port Arthur lives in the house occupied formerly by Stossel. The Governor-General of the Kwantung Peninsula in that which belonged to Alexieff; the Russian Officers' club is now a War Museum. All trade goes *via* Dalny.
- (f) It is worth while noting that the Japanese used every form of artillery, siege, field and pack. The pack

artillery was brought up, on one occasion even to decisive range, to engage the guns of one fort, which was interfering with the attack on another fort. It is possible to handle these guns into positions to which no other artillery could find its way. Prior to the Great War the name 'Mountain Artillery' which was applied to this form of light gun, led to the idea that it was only suitable for mountain warfare, and this lesson of 1904 was lost to us. There is much in a name, and we should realize that there is a place for this kind of artillery in siege and plain warfare (*vide* later at Heikoutai) as well as in the mountains. Its value as a 'close' support weapon is now recognized.

- (g) One of the most interesting questions which arises in one's mind, when going round the Port Arthur defences, is "Why did Nogi first attack the Eastern defences, which were stronger and much more complete than the Western?" Presumably it was for the purpose of securing Wangtai as an observing station in order to be able to shell the fleet in the harbour. But Wangtai does not appear to be as good a site for this object, certainly not better, than 203 metre hill. Considering the fact that the Japanese had been previously in possession of Port Arthur, that they had an excellent map, and are credited with having a unique intelligence system, it is certain that they must have been aware of this. It seems that the General Staff at Tokio favoured the attack being against the Western defences.

Nogi probably thought that he could gain Wangtai at a quite early period in the siege, provided he was prepared to make the necessary sacrifices.

The railway was on this side, which meant that the necessary stores and siege material could be brought up with comparative ease and celerity. It was a long way round from the railway to the Western defences and to attack them entailed delay. Nogi sought a quick decision. Port Arthur was of such great value that to possess it justified the taking of great risks.

Having attacked the Eastern face, finding it stronger than he had anticipated and his assaults repulsed, another question now arises, *viz.*, "Whether Nogi was right to persist still further

in directing his main efforts to the capture of Wangtai, or whether he should have concentrated his energies at once on 203?" My own opinion, which is not shared by everybody, is that he was right to adhere, for some time longer at least, to his original plan. Had the Japanese modified their plans at every rebuff they would not eventually have got to Mukden. Having made up his mind, rightly or wrongly, that the Eastern face was the best to attack, Nogi adhered to his decision as long as he could retain the faintest spark of hope, and with that pertinacity which wins nine times out of ten in war.

THE YALU.

If a detachment is made in war it must be made in connection with a major operation, to which it is subordinate. This fact is often overlooked in criticism, and detachments are considered from a purely local point of view—that is, as to what extent they can, or cannot, resist the force immediately opposed to them. But by far the most important consideration is, "Should the detachment be there at all?" A detachment cannot be considered as an isolated operation; if so, it must fall in its object. Numbers, space, time and mobility, are all points to be considered in its relation to the main force from which it is detached.

When one asks "what was the object of the Yalu detachment?" the answer one invariably receives is "To delay Kuroki's army;" and if one points to the risk the reply is "If ordered to fall back from position to position without becoming seriously engaged there would be little risk."

The term "to delay the enemy" is one of those expressions which, like so many others, is accepted as meaning something in a military sense, but which taken alone as it stands is perfectly meaningless. When you kneel down you don't do it for the sake of kneeling, you do it with some other definite object, such as praying. You may stand on one leg, but if you do so merely for the sake of standing on one leg your action is similar to that of the goose. So, also, there can be no use in delaying the enemy just for the sake of delaying him, there must be some good sound object to justify it.

Now was there any sound object in delaying Kuroki?

It was no part of the Japanese plan to advance one army before the other armies were ready to co-operate. Until the 2nd and 4th armies should be ready to advance, the Russians

need have no fear; or rather, one should say, need expect no such luck as that Kuroki should advance and give them the opportunity of dealing with him when isolated, and when they were free of all pressure from the 2nd and 4th Armies. There was certainly no reason to go out of one's way in order to weaken such a chance. That the Japanese did not look for a precipitate advance may be gathered from the fact that at this period, they were counting on having the 3rd Army up to take part in the anticipated battle at Liaoyang. As it turned out, mud and transport difficulties alone were sufficient to delay Kuroki.

I must admit, however, that my argument is based on knowledge obtained after the event. The Russians did not know at this time that the whole, or at least the greater portion, of the Japanese force would not come by way of Korea. A very slight acquaintance, however, with the topographical and climatic conditions of Korea prohibited the advance of very large forces along this line, except very slowly. Kuropatkin said:—"No operations will be undertaken until we have the necessary superiority in numbers, nothing must take place before August." He had calculated that he would assemble a force at Liaoyang by August sufficient to defeat the Japanese. That is, the Japanese must be prevented from reaching Liaoyang for a period of five months. They must be "prevented," for it could not be assumed that they would voluntarily give these five months to the Russians. Admitting then, that a detachment was necessary in the light of the facts known at the time, was the Yalu detachment, in organization and command, suited for the task set before it?

The Commander of the Yalu detachment was Sassulitch and the orders he received from Kuropatkin were "To retard the enemy, to determine his strength and dispositions, to retreat as slowly as possible on the mountains and renew there an obstinate resistance." On receiving these orders Sassulitch, remarked "His Majesty has made me a Knight of the Order of St. George, and I do not retreat."

All our experience shows that the rôle of a detached protective force is a very difficult one to play. It calls for an able and practised commander, very mobile troops and a large element of luck. Of the two of these three factors which lie within human control it may be said that, in the case of the Yalu detachment, they did not exist. The commander was not an able and practised commander, the troops were not very mobile. Sassulitch came straight to the command of this detachment

from the well appointed office and leisurely surroundings of a Provincial Governor, where he had passed several years of his life. Clausewitz writes:—"In a daily measured resistance the action ought only to be sustained for so long as the decision still wavers. One preserves one's self from defeat by giving up the contest at the right moment." Ah! but what is the right moment? Could a Sassulitch discern it, a Sassulitch who said—"His Majesty has made me a Knight of St. George and, therefore, I do not retreat?"

To delay, and to keep on delaying, a very superior force is perhaps the most difficult operation of war. If the protective detachment is only a short distance from its main body, delay for any considerable time can only be effected by fighting; for in this case there can be no question of retiring from position to position. If the detachment is at a considerable distance from its main body it will have to occupy a succession of positions, and, the more there are, the greater the number of hostages it offers to fortune. On every occasion has that right moment to the judged when, by giving up the contest, one preserves oneself from defeat. How many leaders are there who can be sure of judging that right moment correctly under all circumstances, and an indefinite number of times? And the moment correctly judged, it still remains for the troops to carry out the operation. Again, only very mobile troops can do this—cavalry, field and light artillery, proportionately few and quick and active infantry.

At the Yalu, disposed for the defence of the river line from Suribachiyama to Chingkao, there were seven-and-a-quarter battalions, two batteries, one M. G. and not a single cavalry-man. There were large bodies of Russian cavalry on the flanks, Mischenko on the South, Trukkin on the North, eleven squadrons on each flank. But these were disposed of personally by Kuropatkin, they were not under Sassulitch's orders, and they took no part in the fight on the Yalu.

We are justified in taking exception on general grounds, to the tactical as well as to the strategical employment of the Yalu detachment.

Again experience shows us that a river line is the worst kind of defence against superior numbers and an enterprising enemy, and at the same time its greatest weakness lies in its attractiveness.

In all ages armies have taken up positions along river lines—almost invariably to be beaten.

Such positions preclude the possibility of counter-strokes; they are inoculated with the poison of passive defence. They are especially susceptible to surprise. The enemy, having driven in all your advanced parties can manoeuvre as he pleases behind the screen which you have voluntarily placed before you. Only when detachments can be maintained and passages held which admit of rapid deployment on the far side is defence of a river line permissible. On the Yalu, Sassulitch possessed none of these requisites. And yet, not content with the delay of 16 days which the obstacle of the Yalu, combined with the presence of his troops, caused to the Japanese, he stood to fight a decisive action against vastly superior forces for no other reason, apparently, than that, possessing the cross of St. George, he could not retreat! (See F. S. R., II. S. 23-4.)

Coming now to purely local considerations it seems to us that even for a determined defence the tactical idea was equally faulty. It was an occasion for taking up a "position in readiness," and, viewing the ground from the top of Suribachiyama, the general nature of the country seemed very favourable for such a disposition. A screen formed of picquets concealed in the high ground overlooking the river, and with an excellent field of fire, some single guns or section firing from concealed positions, it would have been difficult indeed for the Japanese to find out what was behind this screen. A very suitable place for the assembly of the remainder of the force exists west of Telegraph Hill.

It is an interesting point for consideration whether the country North of the Ai-ho should have been brought into the position or not. Looking at the map one is inclined to say "No," looking at the ground from the summit of Tiger Hill one is inclined to say "Yes." I consider that at least one regiment of Trukkin's Cossacks should have been employed in the hilly country immediately north of the Ai-ho, in order to avert danger to the detaining force of being "gripped" in its position; in order to enable the Commander to judge more certainly the "correct moment" for withdrawal.

HAMATUN.

He who pursues a beaten enemy does not bother himself over much about a plan, the only plan is to follow on the heels of the enemy, the only executive action required of the superior Commanders is to see that there is no "letting up" of the pursuit.

For it is the act of relentless pursuit which itself creates the situation favourable to the pursuer, and he has but to stoop to pick up the golden apples as they are let fall in his path. Even the leisurely pursuit of the Japanese after they had gained the Yalu led to the, for the Russians, "regrettable incident" of Hamatun. Any great physical or mental exertion is shortly followed by a period of lassitude. Fighting, especially modern fighting, calls for great physical and mental exertion combined. Directly the ardour of a successful fight has cooled, it is exceedingly difficult to get troops to pursue with vigour. The only chance is that the pursuit, if it cannot be carried out with fresh troops, be initiated immediately and follow closely on the heels of the enemy. He must be pursued literally at the point of the sword. From Tiger Hill, Kuroki issued orders for the pursuit. "The Guard, resuming its advance at once, will establish itself on the heights about Hamatun. The 2nd Division will move on Antung." The Guards received this order at 9-20, the 2nd Division at 9-30 A.M. But neither Division moved till 1 P.M.

The inevitable reaction which follows on victory had set in, a reaction, the greater perhaps because it was the first victory, and an easily gained one, over a European adversary. It was not fatigue which delayed the Japanese. The pursuits are rare indeed, which have not been carried out with tired troops. "If Cæsar had refused to pursue because his troops were tired, Pharsalia would have been but a common battle." The field of action was not so large as not to be within the purview of the Japanese Commander; it lay within the liability of his personal intervention. In that supreme test of great leadership, as contrasted with good generalship, Kuroki failed, as many able generals have failed before him.

As so often happens in this war, a wrong impression is gained of the ground from the various official accounts. The valleys are easy and open, and hills over which the fighting took place surmountable everywhere by infantry and cavalry. In short the country is much easier to operate over than one would imagine without seeing it.

The defile described in our official account is not a defile. A defile is only a defile to a body of troops when that body has to defile to get through it. Here all three arms could have marched straight along and over the hills, if necessary, which on either side formed the so-called defile. Also what may be defile for 300,000 men may be no defile for 300.

It is not clear why the Russians on the high ground allowed the Japanese 5th Company, 24th Regiment, to remain on a lower spur of the same feature, without making any attempt to drive them out with the bayonet. We see here the danger of allowing small bodies to establish themselves, for ever so short a time, in positions close at hand, and which are likely to become subsequently dangerous. And if not driven out at once there is every probability that, later on, time and opportunity for doing so will be gone. (F. S. R., II, S. 97, 1.)

Moreover, a rear guard or retiring force should eagerly seize every occasion for checking the enemy by making vigorous counter-attacks. (F. S. R., II, S. 52, 3.)

Once again, or rather, for the first time in the war, the lack of good signalling is seriously felt; and had the Russians possessed any such organization for communication as we do, Gromow's message would hardly have gone wandering about the field undelivered till 4 P.M.

TELISSU.

In studying this battle, one has always to bear in mind that it was a compromise. Kuropatkin, not being in a position to crush Kuroki or Oku, being prevented, for reasons which cannot be gone into at present, by the want of time, numbers and mobility, from taking advantage of his interior position; and being unable to withstand the devil, first in the shape of Alexieff, secondly in the shape of public opinion, took the path which leads to destruction and resorted to a *half measure*. (F. S. R., II, Sec. 10 and S. 11).

Napoleon said that a General should resign rather than attempt to conduct a campaign against his better judgment. He himself practically took this line when the Directory wanted him to carry out a campaign in conjunction with Kellerman.

How many men in Kuropatkin's position could have done this? How many of our own public men to-day would throw up their positions and incomes and chances for the future, sooner than be party to a scheme to which they are inwardly opposed?

There are in fact very few who, as Mahan says so finely of Nelson "No other interest, his own least of all, could divert him from the purpose which he had decided was the right one. For it, he was willing not only to sacrifice fortunes, but to risk renown, and so, amid troubles manifold, he walked steadfastly in the light of the single eye."

Kuropatkin could not rise to these heights, and so it was that he found himself in a false position. And a General who is in a false position, especially with an enormous weight of responsibility on his shoulders, soon loses the balance of his military mind, and only thus can we account for the extraordinary order that was now issued to Stackelberg.

This order ran as follows : " The mission of Your Excellency's Corps is to draw upon itself, by an offensive movement towards Port Arthur, the greatest possible force of the enemy, and so to weaken the enemy's forces operating on the Kwantung Peninsula.

" To obtain this result your movement against the enemy's Northern screen should be carried out with rapidity and decision, so as to crush their advanced detachments at once if these prove to be weak. No decisive action is to be taken against superior forces, and you must be careful not to employ the whole of your reserves in an engagement so long as the situation is not cleared up.

" The final objective of your Southern movement is the capture of Kinchow, and in the sequel, an offensive in the direction of Port Arthur." We need not comment on these instructions now ; they are, as a French critic remarks, " Without a parallel in history."

Having embarked on a compromise, on a sea of contrary currents, Kuropatkin probably did not clearly know himself what port he was steering for.

Stackelberg had selected a position, after personal reconnaissance, at Telissu. This position was to be prepared for defence. But it was not in the first instance meant to be a position in which a decisive action was to be fought against the Japanese. It was intended rather as a covering position, behind which Stackelberg could concentrate all his troops and make all his preparations for an advance, which he hoped to commence about June 17th. It never seems to have occurred to him that the Japanese might anticipate him in the offensive.

The reason of Stackelberg's miscalculation is quite clear to me. He had failed, as we all of us so often do fail, to seat himself in spirit at Oku's camp table, he had neglected to put Oku's cap upon his head, he had not tried to get his big self inside Oku's little body, and hence his appreciation was a wrong one. (T. and M. Regs., Sec. 25, p. 8, sub-para. 3.)

Turning to the Japanese side, one can see on the map the route taken by the 4th Division. It marched 16 miles on the

14th. It halted for the night 14-15th separated from the rest of the army by 15 miles of mountainous country. A march of almost another 16 miles had to be made on the 15th, before any portion of this Division could take part in the battle.

The reason for detaching the 4th Division is seen in General Oku's operation orders for the battle, Para. No. 5. "The 4th Division will move from Wuchiatus (S) at dawn, and keeping West of a line through Wuchiatus (S)—Lochiauang-Linchiakou (W), march to the Fuchou-ho. Arrived there, it will halt and be prepared to operate against the enemy's right and rear, keeping a careful look-out to the North."

By detaching the Division to a point about 12 miles from the enemy's flank, envelopment, as compared with a mere outflanking movement, was obtainable, and there can be no doubt as to the comparative efficacy of the two methods. Was it safe, however, and was it even necessary to go so far afield? The country is a mountainous one, and, if it offers no particular difficulties to a single pedestrian or even to a considerable force of foot and horse, it is another matter where a whole division is concerned. Would not equal results with less risks be possible by moving the Division *via* Luckiakou (W) to Yangchiatus?

Putting ourselves in place of Oku, however, what would be a reasonable explanation of this very wide eccentric movement of the 4th Division?

Oku, as we know, had information of the fact that the Russians had about three Divisions at Telissu. What he did not know was that Kuropatkin had fallen back on a compromise—that Stackelberg's detachment was only a detachment and nothing more. Oku, giving the enemy, as we are always taught to do, credit for doing the best thing, or at any rate a good sound thing (T. and M. Reg., Sec. 25, p. 8) would believe that, if the Russians had concluded it was wise to move South for the relief of Port Arthur, they would put their whole heart and soul into the business; and this being so, he would naturally look to meeting a stronger force than Stackelberg had in hand. And the most natural direction in which to find a hostile column moving, if not by the Railway, would be by the main road through Fuchou.

For a serious movement South, on the part of the Russians for the relief of Port Arthur, it is reasonable to suppose that the Russians would use both the railway and the main road which leads through Fuchou. On finding that Oku had anticipated them, and was already advancing straight up the railway, what

more natural than that the Russians on the railway should hold Oku, while those marching down the main road should turn and attack him in flank. Oku's position would thus be an extremely awkward one, and if driven back he would have had great difficulty in getting back to the covering position he had just vacated and the road to Port Arthur would be open to the Russians.

Nevertheless, it is a question for consideration whether this was not a case where cavalry, supported if necessary by infantry detachments, could not have found out as well, and even better, than the 4th Division, all that it was required to know. Oku may not have ventured his cavalry for fear of the Russian cavalry. However, this was a cavalry job, and, as matters turned out would have succeeded. Had Oku been repulsed at Telissu the battle would have been handed down (and rightly so if the battle is taken as an isolated event) to posterity as an example of the penalty paid for violating the principles of economy of force and concentration by making a detachment in the face of the enemy.

Stackelberg's information had established the fact that at least four brigades were opposed to him and that these were preparing to attack.

Simonov's cavalry did not report any movements West of Wangchiatun. They had been ordered to reconnoitre up to the line of the stream running South-south-east from Tahotang, and up to this line they reconnoitred and not a yard beyond it. An order to the cavalry to reconnoitre up to a certain line, which happens to be a convenient topographical feature marked on the map, is constantly met with, and it generally misses fire. The result in this case was that an entire Division marched past the front of the Russian position at a distance of less than 10 miles, reached the vicinity of Satchodsi at noon and encamped there for the night of the 14-15th; and the first notification of the presence of this strong force on his right flank reached the Russian Corps Commander only on the morning of the 15th. The first message was despatched from Langkao at 6 A.M., and reached the Corps Commander at 11 A.M. The distance from Satchodsi to Langkao is 9 miles, and from Langkao to Telissu 4 miles, total 13 miles. In other words, in spite of having a large cavalry force at his disposal, it took the Russian Commander 24 hours to hear of a hostile division 13 miles away, and only 9 miles from his cavalry headquarters. Had the order to his cavalry been, as all such orders should be, to certain

definite points such as to Fuchou down the Fuchou-ho, to Machiantzu and Wuchiastun (S), it would have been bound to strike the 4th Division with the minimum expenditure of strength.

Since, as I have said, the cavalry had reported nothing on the West, and that, on the East, the enemy's right had been ascertained East of Wafangwopu, Stackelberg thought the situation "sufficiently clear," and decided to attack, himself on the 15th. This brings us to the counter-stroke, which had the fairest chance of success, and which ended, instead, in a glorious muddle, owing mainly to a lack of staff knowledge on the part of the leader, of Stackelberg. It is particularly worth our notice.

Stackelberg had been watching the fighting with the 3rd Japanese Division during the afternoon of the 14th. About 5 P.M., he returned to Telissu, and during his ride there he seems to have formed in his mind his plan for counter-attacking the Japanese. As soon as he got back to Telissu he sent for Glasko and ordered him to set off at once, *i.e.*, at 5 P.M. on 14th, and take his brigade to Tsui-chia-tun, and on arrival there, to report himself to Gerngross, and come under the latter's orders.

Glasko departed, and on reaching Tsui-chia-tun he sent forward two detachments—one of one battalion and 4 guns to 1,000 yards south-east of Fuchingfu, the other of 2 battalions and 4 guns towards Wafangwopu. At the same time, he despatched an orderly to find Gerngross, to report his position and ask for orders.

Meanwhile, as soon as Glasko had marched off from Telissu, Stackelberg had despatched two messages to Gerngross—one dated 6 P.M. and the other 6-10 P.M. The first message read, "I am shifting the 2nd Brigade and 35th Division to Tsui-chia-tun with the intention of attacking the enemy at daybreak in the direction of Wafangwopu. It will be your task, simultaneously, with three regiments, of the 1st E. Siberian Rifle Division, 2 battalions of 2nd Brigade, 35th Division, and 2 batteries, to carry out an attack against the left flank of the enemy's forces, which are trying to turn us."—

The 6-10 P.M. message read, "I have sent Glasko's Brigade, 35th Division, on Tsui-chia-tun, with the intention of supporting you. Pre-concert with Glasko for a simultaneous attack upon the enemy who is advancing against your left flank."

And at the same time he sent off one other message, this one to Glasko, saying "I am sending you as reinforcement one

battalion, 34th Regiment. It is your task, after arranging with General Gerngross, to attack the flank of the Japanese fighting against Gerngross. If retreat becomes unavoidable it will be carried out in the direction of Chataofang."

"Reports to Telissu Station."

These are very unsatisfactory orders. It is not clear from them that Glasko is under the orders of Gerngross. Gerngross does not understand from them that it is he alone who is responsible for drawing up the plan of attack and issuing the orders. This is evident because when, during the night, Glasko refers to Gerngross regarding the attack, the latter merely replies, "If the Commanding General desires an attack to be made at daybreak, it might succeed," which is hardly the sort of answer one wants when one is asking what one is to do.

Standing on the ground we try to imagine the situation; Gerngross and Glasko trying to get into communication with each other, either personally or by orderlies, in the growing darkness of the night, separated by 2 or 3 miles of unknown mountainous and almost pathless country, and neither knowing the exact spot where the other is. It seemed to me, standing there, that it was hopeless under such circumstances to expect, except by the fairest luck "to pre-concert" an attack which is to take place at the coming dawn.

The 1st Siberian Division had been informed that the attack was not to be made before the 2nd/35th Division had come up into line with it. But when day broke the Brigade had not yet arrived anywhere near, and Gerngross thus sent word to Glasko, "Attack, we shall support you from the heights." This was the "pre-concerted" attack which Stackelberg had ordered, but ordered in such a way that only the direct intervention of Divine Providence could have made it succeed.

Now we must return to Stackelberg for a moment. Night had brought him time for reflection, and with an unfortunate result, for now "the native hue of his resolution was sicklied over with the pale cast of thought," and he sent off at 6 A.M. on 15th the following message to Gerngross, "If the Japanese advance with superior force against our centre, or in any other direction, the corps will fall back slowly to Wanchialing. In this case, General Glasko will hold the line Kouchiatun—Tsui-chia-tun as long as possible, in order to give the troops falling back by Telissu time to traverse the defile, North of Tsui-chia-tun. Should the Japanese retire, the

troops will halt and await further orders," and I will go so far as to say that from the moment when Stackelberg issued this order the Russians had lost the battle of Telissu. But was the fault entirely that of Stackelberg? Had Kuropatkin no share in it? I think he had. If you refer to his orders of 7th June to Stackelberg you will find in the latter's last order an exact reflection of the instructions he had received from his Commander-in-Chief.

In war, words are things which are far reaching, one drop of ink made by the Commander of an Army may effect thousands and millions of men, and by his words is he justified or condemned.

At daybreak on 15th the Japanese guns opened fire. Glasko, having consulted much with his subordinates and in great perplexity as to what he was to do, attempted to carry out the spirit of Stackelberg's vague orders of the previous evening.

He moved forward to attack the Japanese right. At this moment was placed in his hands Stackelberg's 6-30 of 15th order, breathing of nothing but retreat. At the same time reports came from his two detachments, already mentioned, saying they were hard pressed by superior forces. Glasko, believing that the case referred to in Stackelberg's order had arisen, *viz.*, the attack of superior Japanese forces, resolved to fall back. He retired and took up a position on the line Kou-chia-tun—Tsui-chia-tun. Can we be surprised that he acts on the only definite order he has yet received?

And so ends the first chapter of Stackelberg's counter-stroke.

The Japanese had intended to advance to the attack at midnight. They did not actually move off till between 4 and 5 A.M. They made some ground under cover of the hills and a thick fog. But the 3rd Division did not succeed in getting beyond the line Chung-chia-tsin-an-tun—Ssu-chia-tou, wanting Artillery support.

Soon after 7 A.M. Gerngross moved forward with 9 battalions to attack the 3rd Division, counting on a simultaneous and converging attack on the part of Glasko with a force of similar strength.

The Russians attacked with great bravery. They got to within 500 paces of the Japanese, in places much closer, even hand to hand; and when pouches were emptied the combatants resorted to stone throwing. Oku sent up one of his two reserve battalions to the assistance of the 3rd Division. With what sickness of hope deferred must Gerngross have awaited signs of Glasko's attack, but he waited in vain. At 10.30 A.M. a staff officer from Stackelberg had ordered Glasko to advance again, and at once, to the attack, and as he did so he saw Gerngross' division retiring northwards.

And so ends the 2nd chapter of the counter-stroke.

Glasko's attack, made with fresh troops, met at first with some measure of success; but his left was itself taken in flank by Akiyama's cavalry brigade*, and meanwhile, at 11-30 A.M., Stackelberg had given the order to Kondratowitch to retire; and with this ended the 3rd and last chapter of the counter-stroke.

In spite of all the faults and contretemps this counter-stroke nearly "came off." The "idea" and "timing" were both excellent. The weakness of counter-strokes is that they generally come too late. In this case it was started just at the right time. The nature of the country was very well adapted for its deployment and execution. The valleys are much wider than one would gather from the map and offer a certain amount of concealment and cover.

All that was required was "concerted" action, and this was neither arranged for by the Commander-in-Chief nor were any efforts made to ensure it on the part of the two Commanders immediately concerned.

The action of the cavalry on the Russian right calls for remark. The ground in this part of the field is particularly suitable for cavalry action. Open valleys down which the cavalry can move in column of troops and even wider formations, frequent undulations and re-entrants affording opportunities for surprise attacks, excellent ground for dismounted action giving concealment for the led horses, and covered retirement and occasions for sudden shock action by small bodies—ideal ground for cavalry to fight a delaying action.

It was reasonable for Stackelberg to expect that the cavalry under Simonov would delay the Japanese in the vicinity of Lang-kao or further West. But it did nothing of the sort. In fact it "sneaked" off the field, which is the only expression which properly describes the form of its retirement, without offering any resistance at all worthy of the name. To what must we attribute this failure? Looking over the ground the causes seemed to me not to lie in that; as already said, this was most favourable, but to the following three:—

First.—When the Russian advanced guard retreated on the 14th, the continuity of their reconnaissance was lost. The Russian cavalry absolutely lost touch with the enemy. Thus it was a simple matter for an entire hostile division to march unnoticed and unopposed as already described (F. S. R., II, S. 36, 5.)

* NOTE.—General Akiyama had been ordered to move up the valley and cut into the Russian rear. He told me himself that he took the line he did on his own responsibility, on learning the critical situation of the 3rd Division.

Second.—It is impossible to acquit the Corps Commander of the charge that he did not make more clear to his Cavalry Division Commander what was expected of the latter. The limit assigned to the Cavalry Commander for reconnaissance was so restricted that the line of march of the Japanese division lay beyond its boundaries. If the command from Corps Headquarters had been “the Cavalry Division will protect the right flank, it will reconnoitre all hostile movements and repel, or at least retard, any possible operation against the right flank,” it is reasonable to assume that the reconnaissance would have been more extended, and the Cavalry Division would then have been in a position to take advantage of the ground and to retard, perhaps for hours, the advance of the portion of the Japanese 4th Division.

I say “would have been in a position to take advantage, etc.,” advisedly, for there is every reason to suppose that, under Simonov, the cavalry never would have taken advantage of anything. In the orders for the battle this cavalry was directed “to retire on Tafangshan village and establish themselves West of it, and cover the right flank of the position, observing the tracks and valleys about Tafangshan, Huangchiatun and Huichiattun.” It carried out this order to the letter; that is to say, it established itself so firmly that it became immovable. The word “establish” has a different significance when used by a Napoleon to a Murat, to what it has when used by a Stackelberg to a Simonov.

Third.—The narrow construction placed upon what was manifestly his duty on the part of the Cavalry Commander.

Had he possessed a larger conception of the problem before him, *i.e.*, had he reconnoitred for the enemy instead of merely observing the road, and had he subsequently fought the enemy instead of wriggling through the hills like an eel to evade him, he would not have yielded such a slavish obedience to the letter of his orders.

The valley of the Fuchou-ho appeared to us to divide the Russian position into two sections disconnected from each other. The result of this was that if one section was driven in the other section must retire very rapidly for fear of being cut off or, in other words, the danger of a portion being cut off was much increased, and there could be no mutual support or co-operation.

THE ROYAL AIR FORCE AND ARMY CO-OPERATION.

By Major R. G. Cherry, M.C., R.A.

We are well aware that this article puts forward views which conflict with the present policy with regard to the Royal Air Force. The views put forward however, are those held by a large number of competent judges, and we hope that, at the least, the article will give rise to interesting discussion—Editor.

Ever since the R. A. F. broke away from the Army and Navy in 1918, there has existed the grave doubt whether the break-away would benefit either of the older services.

Progress since the war has not tended to diminish this doubt, and as the new service found its feet and developed its own traditions, its own system of training and its own outlook on national affairs, the tendency has been to make this break-away more complete.

The history of the last war, as far as actual aircraft co-operation is concerned, does not offer encouragement for the future. There is no doubt that service in the corps squadrons, which were employed mainly on artillery co-operation, was unpopular compared to service in fighting and bombing squadrons, or in the Independent Air Force. The reason for this is not far to seek. Up to the last year of the war the worst type of machine was allotted to artillery work. This meant that the casualties were heavier, at any rate from 1915 to 1917; the chances of success in aerial combats very much poorer. Such was the premium put on good fighting pilots that the best were sent or transferred to fighting squadrons, and the bulk of the more valued decorations and rewards were given to those who gained brilliant successes in aerial warfare. These factors had the result that the general morale of the artillery pilots and observers was lower than that of the rest of the Air Force. In one fighting squadron of which the writer had experience, the mere rumour that they would be turned on to artillery work caused the utmost depression among the pilots and the C. O. had the greatest difficulty in arousing the slightest interest in this work. All these factors directly affected the

artillery, and to a certain extent all arms of the service, as the artillery squadrons were responsible for close reconnaissance, photography and co-operation for the corps on whose front they worked.

Another factor which is not so generally known is that the Air Force, considering its own requirements as of greater importance, did not insist that R. A. officers and observers should go to command and man co-operation squadrons. There were of course exceptions, but a considerable proportion of the artillery officers, who had volunteered early in the war to transfer to the Flying Corps in order to assist the Royal Regiment from the air, were taken for other duties, and in this way their experience of artillery requirements, their knowledge of and sympathy with their brother officers, were lost to the Army.

In many cases the Gunner pilots were carried away by the glamour of air combat, became imbued with the air spirit, and ceased to regard the aeroplane as a vehicle for assisting the fire of the guns. In other cases Gunner officers met with a direct refusal to be employed on artillery work; of the few who persisted, some were allowed to return to their batteries, others were told that as the Flying Corps had taken time and trouble to train them as pilots, they must carry on with such flying duties as their senior officers thought fit.

The above remarks should not be taken to belittle the very excellent and gallant work carried out by Artillery squadrons and Squadron Commanders, who in the main carried out their arduous and sometimes thankless duties to the utmost of their ability.

"If this is done in the green tree, what shall be done in the dry." If the above is a fairly accurate picture (drawn from personal experience and observation) of what took place in the last war, when the Flying Corps was, until 1918, an integral part of the Army, what may be expected in the future now that the Royal Air Force is a thing apart? This failure to regard the aeroplane as a vehicle from which to assist the Army will be accentuated. It is true that co-operation courses are held at certain centres, but the present day teaching of part, at least, of the Air Force high Command is that Air Power will be the predominant factor in the next war. It has even been stated by a high Air Force authority that the rôle of the army in the future will be to form aerodrome guards. It is a fact that the "shop" in Air Force messes is mainly concerned with air fighting, air performances, air stunting, bombing, accidents, "cold feet" and the like.

Out of seventeen stations in the inland area of the Royal Air Force at Home, all but two, Salisbury Plain and Farnborough, are completely out of touch with army units, particularly with the artillery. We of the Army would like to see a proportion of Air Force commanders and pilots made to specialise entirely on army work, living alongside artillery and infantry units and thus establishing that intimate personal liaison which is of so much greater practical value than short intensive courses of instruction.

The writer believes that such specialisation is distinctly forbidden. There are at Aldershot and on Salisbury Plain a few Air Force units—three or four squadrons out of a total of about 30, definitely allotted to Army co-operation and working in close touch with Army units, but the pilots of these squadrons are not permanently earmarked for this work, but spend three or four years, or even less, in these squadrons before being moved on to other air duties.

There is a danger that the best pilots and observers will be taken, from among those trained in army co-operation work, when an emergency arises, such as the sudden outbreak of a great war against an enemy within air range of our coasts.

Let us look at this question of aeroplane co-operation with the army from the point of view firstly of the army and secondly of the Gunner.

In the early stages of a campaign, before close contact with the enemy is established, the military commander must depend largely on the Air Force, for the necessary information on which to base his plans. Such information will, of course, be supplemented by, and compared with, information supplied by spies, strategic patrols, etc.

One hopes that the temptation will be resisted to replace the casualties in fighting and bombing squadrons, that will undoubtedly occur in the initial phases of the independent air campaign, from the personnel of Corps Squadrons. If not, the military commander will have to rely on the reports of observers, many of whom will have but little air experience and will not realise the value of what they are asked to look out for. No General can base his plan on the unverified reports of inexperienced observers.

Owing to the importance of the work, and the difficulty of training air force observers in peace, the army commander would prefer to send up staff officers, experts at reconnaissance, who appreciate the strategical position and who at the same time have been trained to carry out observations from the air.

Again, when touch has been obtained, he will want to have an accurate description of the movements in rear of the enemy's battle front. Here again it is the Staff Officer who has been trained to direct the movements of our own back services, who will be of far greater use than the Air Force observer, who may not understand the significance of such movements as he may observe.

Now, from the artillery point of view, we work on a stereotyped procedure, but little advanced since the end of the last war, whereby the pilot of the "artillery" machine finds and reports targets, observes and reports the fall of shell, while his observer is purely and simply an aerial gunner whose only rôle is to protect the pilot. The pilot has no control over the artillery fire. This system has, with practice, attained considerable success, but we have reached a point when no further advance seems possible. The artillery has deliberately given up one of its eyes to another service, that is to say trusts for the observation of their fire from the air to those who have at best no practical knowledge of the artillery, except what has been gained by short attachments or co-operation at practice camps; and when the exigencies of a campaign have carried off the few trained pilots, then the artillery will have to rely on pilots who have only a smattering of knowledge and who barely know the stereotyped procedure.

Therefore the system has to be made foolproof and there can be practically no progress in developing observation. Now that radio-telephony provides a medium for controlling artillery fire from the air we wish to develop observation and control. But no gunner will give over this great power of concentrating, and controlling fire to a pilot of another service, who has had no training in the use of concentrated fire, the control of ammunition expenditure, and the hundred and one problems that arise in connection with the observed control of artillery fire. Therefore it follows that gunners must take the air to control the fire of the guns.

The question has been debated whether three seater aeroplanes should not be used for observation for the army in general and artillery in particular. The disadvantages of the employment of three seater machines with two observers have been ably set forth in a pamphlet by the Air Ministry, and the writer not only does not wish to refute them, but is on the whole in agreement with them as far as they refer to artillery observation. It is

unquestionable that the most suitable person to observe this fire is the pilot, who can always place his machine at any moment in such a position that he has the best view possible.

A distinguished officer, speaking of Army officers being trained as observers has stated that "the question of artillery observation will not be satisfactory until we have a large proportion of artillery officers trained to take the air (as observers), to be accustomed to move about freely in the air and observe and command from the air if necessary." If we substitute "pilots" for observers, we are entirely in agreement with him.

Let us now consider the question of the air requirements of the Army in Small War. In such a war, one may assume that the enemy will either have no air force at all, or at the most a small number of machines which will probably be badly equipped and handled.

The necessity for good reconnaissance by officers who know the theatre of war is of enormous importance.

Will any Air Force officer deny that reconnaissance from comparatively low altitudes can be best carried out by officers who have spent many years of their service in or near the locality? Especially is this true in the outposts of empire, where an intimate knowledge of the terrain and of the methods of the enemy is of paramount importance in reconnaissance on the ground or from the air.

In such a campaign, the advantage of having fire controlled by an expert artillery officer is obvious. Targets, especially in bush and mountain warfare, will usually be fleeting opportunities, of which the fullest advantage can only be taken by rapid fire guided and controlled by radio-telephony.

What is the best solution of this problem, so vital to the efficiency of the Army?

It is apparently impracticable and possibly undesirable that the Air Force should return to its parent services. The R.A.F. has obtained such a hold on the public imagination that proposals to abolish it as a separate entity would be vetoed by any government that was in power. The next alternative is for the Air Force to specialise seriously, not merely play at specialisation as it does at present. It must realise that a proportion of its cadre must be devoted heart and soul to the army, regarding its machines as vehicles for the collection and dissemination of army intelligence.

What is the great obstacle in the way to this ideal? It is the aeroplane fetish.

We all know of the "M. T." fetish, and how it has taken the army twenty years to finally kill the theory that only a driver of the Royal Army Service Corps is fit to drive a motor vehicle. It is only within the last twelve months that the mechanicalised medium artillery in India have been allowed to drive and maintain their own vehicles.

We are, as an Army, intensely conservative, and Army circles, encouraged by the Air Force, are now under the influence of the aeroplane fetish.

We are taught to regard the airman as a kind of superman, we are told a great deal about air sense and the difficulties not only of flying an aeroplane but even of going up in the air. We are told horrible stories of officers who were taken up into the air, saw nothing and were violently ill, thereafter becoming converts to the theory that army officers cannot carry out observations.

In the late war, however, the writer who claims to be one of the world's worst sailors and had the reputation of being one of the world's worst air pilots, was sent as observer on reconnaissance after less than two hours' flying and never as observer or pilot came back to ground lighter than when he went into the air.

The young army officer (and he should for physical and psychological reasons be under 40) can be taught to observe as easily as an air force cadet, and his observations will have the greater value as he will have knowledge of troop formations and movements, first hand.

The taking and reading of aerial photographs is not a sealed book, it can be quickly and easily taught. The routine of artillery observation can be taught on a miniature range on the floor of a shed with the observer perched on a ladder in the roof. A few hours' practical experience in the air will suffice to make any intelligent gunner officer into a good observer.

The actual art of flying an aeroplane can be taught in a few weeks to any young, fit, and active soldier, especially if he is a thruster to hounds.

The army could furnish to-day at least ten squadrons of pilots and observers with war experience, who would be fit, after refresher courses in Air Force units, to command and man any co-operation squadrons.

This leads up to the last alternative, the assumption by the army of certain of the flying duties now carried out by the Air Force.

In dealing with this question, it is not so much the provision of Staff and other army officer observers for reconnaissance that needs careful consideration, as the problem of how we propose to employ the means of control of artillery fire offered from the air.

It is necessary first to discriminate between tactical control and Fire Control.

Consider the tactical control of light artillery directly supporting an infantry attack, which includes of course control of ammunition expenditure per target. To wield this control efficiently the pilot observer must have consulted with the Infantry Commanders, he must have an accurate knowledge of the ground situation from time to time, and he must have indicated to him from the ground what important targets must be engaged.

In order to carry out these duties he must fly over our advanced troops, that is to say within range of hostile machine guns. His height must, therefore, be not less than 3,000 feet. From this height he certainly will not be able to distinguish hostile machine gun nests, which will undoubtedly form one of the most urgent targets; he will not be able to distinguish accurately our own infantry advance, or signals made to him from the ground.

We may, therefore, concede that in this, the most important case, tactical control from the air is impracticable. The further deduction from the above is that observers of light artillery will seldom be able to pick up fresh targets within, say, 2,000 yards of the front line, and if they do, they cannot know whether it is tactically desirable to open fire upon them. Fire control from the air of certain targets is another matter altogether. Such targets as hostile reserves, transports, guns and headquarters, will be distinguishable from 3,000 feet. These are counter-battery targets and it is the normal rôle of the medium and heavy artillery to engage them. The best person to carry out fire control of such targets is the Medium or Heavy Battery Commander or a gunner officer of his status. Fire control of pre-arranged targets, *i.e.*, time programmes could also be carried out from the air by pilot observers of light artillery. This can be carried out by assistant observing officers, that is to say the battery commanders need not take the air.

The next point to consider is how many machines would be required for use per division, to allow for adequate fire control from the air in war.

It may be assumed that each division would have three light artillery brigades reinforced by one army brigade, and supported by one medium brigade and a heavy battery. Allotting balloon observation to the heavy or one of the medium batteries, we should require one machine in the air per medium battery—a total of four machines, and, for the field brigades, one machine for each of the two brigades that will probably remain under C. R. A.'s control. This gives a total of six machines continually in the air, to supply which two eight machines flights would be necessary. That is to say, one squadron will be required per division; this is an increase on present organisation which allows one squadron per corps. To effect this, the first step in peace will be to provide gunner pilot-observers for medium or heavy artillery, and the second step to add pilot-observers for a proportion of the field artillery.

The nature and rate of progress will depend on technical developments.

We assume that the practical use of radio-telephony for communication between air and ground is imminent, and that the artillery machine of the near future will not require an extensive landing ground in which to land. That is to say that in normal country an aerodrome or advanced landing ground can be found within reach by horse or car of the medium artillery and the rear brigades of the light artillery.

There are now three alternatives for effecting this change of organization under which Staff or other army officers will be utilized for close reconnaissance, and artillery fire will be controlled by gunners from the air.

A.—An Army Air Service, manned chiefly by gunners, entirely independent of the Air Force. This would be wasteful, expensive, duplicating questions of recruitment, expansion, provision of material and administration.

B.—An Army Branch of the R. A. F.

This is equivalent to manning existing Army Co-operation Squadrons with Army pilots—chiefly gunners.

That is to say the ground strength of the Royal Artillery would remain unchanged, the total strength of the R. A. F. remains unchanged except that a certain number of R. A. F. pilots

and observers would be replaced by an equivalent number of picked gunner and army pilots and observers. There would be no financial increase, but the internal administration of such squadrons would be difficult owing to there being personnel of two services in the same unit, being subject to different regulations wearing different uniforms and having different traditions. It would be necessary either to attach the army pilots to the Air Force, or to attach the R. A. F. ground personnel to the Army. Further the control of fire would not be in the hands of the officers of the battery concerned.

C.—The reorganization of Army Co-operation squadrons to the artillery of the divisions and corps for which the squadrons are earmarked. The gunners would have a proportion of their officers trained as pilots, while a number of Staff and other army officers were trained as observers for reconnaissance. In each medium or heavy battery, the Major or Captain and two subalterns, and in each field brigade four captains or subalterns should be so trained on the type of machine with which these squadrons are equipped. These officers would go up as required to control the fire of their batteries under orders of the Artillery brigade or Group Commander.

The organization of these squadrons would be modified to admit of N.-C. O. pilots being allotted to two flights of each squadron, which pilots would be responsible for test flights and for the moves of their machines from one locality to another.

Of the suggested solutions to this problem which so vitally affect the future progress of Air Co-operation, the writer prefers (C) considering (B) as a practical alternative. Such development will depend on the loyal support of the R. A. F. and of the Royal Regiment. In the latter, there are to-day a considerable number of officers who flew in the Great War. If only half of these would co-operate for a start, undergo refresher courses, and are then posted to units at Aldershot or Salisbury Plain, a beginning could be made. Even if the experiment failed, a number of officers would have been trained in modern air work and would be most suitable to be earmarked for liaison duties with the R. A. F. in the next War.

THE DEVELOPMENT OF CO-OPERATION BETWEEN AIRCRAFT AND TANKS.

By Squadron Leader E. J. Hodson, R.A.F.

1. Introduction.—Aircraft and tanks are the two newest developments of the mechanical science as applied to modern warfare. In many of their characteristics they are diametrically opposed, and for this reason they are in certain ways complementary to one another. It is the purpose of this paper to examine these characteristics and to see how each can help the other in future warfare.

Both being new weapons, it has been necessary to venture into the realms of conjecture in places, but in this, as in any other forms of warfare, it is essential to look ahead and try and forecast what the future may hold.

2. Characteristics of Tank and Aeroplanes.—The aeroplane, of all the weapons of war, possesses the best range of vision; the tank on the other hand is probably the blindest when closed for action:

The tank is the most mobile of all the land arms of the service, but the aeroplane possesses far greater mobility than even the tank. The tank is well protected, by means of its weapons, its armour and its mobility, against small arm and automatic weapon fire; it is very vulnerable to artillery fire. The aeroplane depends on its mobility and its weapons to give protection from small arms fire and artillery fire.

In certain of their characteristics the tank and aeroplane are thus very similar, but they differ vitally in others, the most marked divergence being in their relative fields of vision and powers of manœuvre.

3. General Considerations.—Aircraft were first actually allotted for co-operation with Tanks from July 1918 until the end of the war. Data is very scarce in consequence and all we can say with any degree of accuracy is that this co-operation proved most valuable.

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The aeroplane can help the tank in its general rôle by—

- (a) Taking stereoscopic photographs of ground over which it may be required to advance, thus amplifying the information which may or may not be available from maps.
- (b) Discovering suitable objectives.
- (c) Discovering anti-tank guns and obstacles.
- (d) Attacking any anti-tank devices that the enemy may prepare such as tanks, anti-tank guns, etc.
- (e) Conveying spare parts to tanks stranded many miles from their bases.

The tank can help the aeroplane in certain ways, most of which are for the moment perhaps rather in the realms of conjecture.

It is suggested, however, that—

- (a) Tanks should be able to hold and protect landing grounds for the R. A. F.

This problem is likely to become rather interesting as time goes on. Tanks are perfectly capable of raiding into enemy territory as far back as advanced aerodromes are likely to be situated.

To meet this threat either adequate anti-tank protection must be provided by natural obstacles or by mechanical means.

The siting of an aerodrome in such natural surroundings as will preclude any chance of tank attack is not normally compatible with the requirements of the R. A. F.

Landing grounds situated in forests, woods or on marshy ground are not usually practicable.

The ground may be protected by a river on one side or conceivably by a wood or marsh, but hardly all round. Speaking generally, therefore, aerodromes require to be located on just such ground as tanks can best operate over. It seems not unreasonable, therefore, to assume that advanced aerodromes may in future be protected by what is believed at present to be one of the best anti-tank weapons in open country. *i.e.*, the tank.

(b) To pursue this point still further. If raids or advances by tanks of distances up to say 100 miles a day, are going to be the order in the next war, and who can say that this will not be so, co-operation with aircraft will be rendered extremely difficult. Yet in the nature of things it will be essential. The answer to this problem then will surely lie in the seizing by tanks of advanced aerodromes for their co-operating aircraft and holding these grounds until either the infantry or cavalry arrive and relieve them or they cease to be necessary.

In the first place, therefore, aircraft and tanks will form a sort of mutual protection society.

4. *Aircraft and Tank Tactics.*—It is now proposed to consider in some detail the actual co-operation of aircraft and tanks in the various phases that may arise during a battle. First let us consider the different rôles of a tank, and by comparing present co-operation methods try and discover how they must be modified to meet the new situations.

(A) *Infantry and Tanks.*

It has been an accepted principle of warfare for countless generations that on the infantry will ultimately depend the issue of the battle. All other arms of the service, each in its own particular way, are working to assist the infantry to attain its object, and to frustrate the attempts of the enemy to prevent it. This statement is just as true of aircraft as of any other weapon. This duel, therefore, to prevent the backbone of an army from attaining its objective, reached such a stage in the last war that both sides were driven to ground like moles, and for many months a state of stalemate prevailed. . . .

Then came the tank.

This weapon was capable of defeating the infantry's chief enemies—barbed wire, machine guns and rifle fire. This salient fact, therefore, emerges from the welter of conjecture, *i.e.*, that with the modern weapons available, infantry cannot advance without appalling casualties unless adequately protected. It cannot be said that the employment of tanks during the war gave us really conclusive data to work on. This was

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inevitable, since the tank, being a war baby, was rarely available in sufficient numbers, its tactical employment was frequently not understood nor were its limitations and capabilities. It is again therefore necessary to explore the realms of conjecture in order to visualise how aircraft can best assist the tank in its rôle of armoured infantry

Let us consider for a moment the limitations of the tank; the most important point of all. It is at present incapable of operating in mountainous country, swampy or marshy country and woods or forests. It cannot cross rivers, ravines or canals over a certain depth of width. Co-operation with aircraft will be required mainly, therefore, in more or less open country, devoid of such obstacles as are stated above, or where lines of advance are available which will allow the tank to avoid or circumvent them. Co-operation with the tank in its rôle of armoured infantry will therefore be confined to more or less open country.

What does the aeroplane do for unarmoured infantry under these conditions?

- (a) It keeps track of their advance, reporting to Headquarters progress made.
- (b) It reports on the enemy, his strength, position and movements.
- (c) It helps their advance by attacking strong posts, and possibly dropping non-toxic gas bombs.
- (d) It can cover their activities by dropping smoke screens.
- (e) It directs artillery fire on to guns that are harrassing them.

Now let us replace the infantry by tanks, or rather let us consider them mechanicalised, and protected against rifle and machine gun fire. How will this affect the co-operation outlined above?

Firstly let us consider how the situation has altered.

- (i) Our infantry are better protected from the action of the enemy's infantry.
- (ii) They are still, however, just as vulnerable, if not more so, to artillery fire.

- (iii) They can move much faster.
- (iv) They are perhaps blinder.
- (v) They are still subject to human breakdown, *i.e.*, wounds, fatigue, etc., and they are also subject to mechanical breakdowns as well. They are, therefore, capable of being marooned very much farther from their base than is normally the case.

We have now both sides of the picture—in what respects is the situation altered from the air point of view

- (a) The tank will ultimately be quite capable of keeping Headquarters *au fait* with its position by means of wireless. At present this cannot always be done and even in future it may not be desirable when raiding into enemy territory. Aircraft, therefore, will still be required to provide the link between tanks and Headquarters.
- (b) The tank is blinder or, at any rate, has no better vision than the infantry, nor is it any easier position to know the strength, etc., of the opposition. Aircraft will still be required, therefore, to report on the enemy's strength, position and movements.
- (c) The tank does not need to worry about machine gun nests or concentrated rifle fire. It does, however, require help against anti-tank guns. These guns to be effective must have a proportion well up near the forward zone. Instead then of attacking the normal infantry obstacles, attack must be transferred to tank obstacles, *i.e.*, anti-tank guns. In this case the principle remains the same, but the objective is changed.
- (d) Smoke screens will be just as useful to tanks as to infantry and therefore this portion of co-operation remains the same.
- (e) Artillery fire, apart from special anti-tank artillery or rifles, remains just as great, if not a greater menace, to tanks as to infantry, and, therefore, must still be just as important a consideration as before.

So far little difference can be found in considering this rôle of the tank, *i.e.*, armoured infantry.

What is the main difference however, between infantry and armoured infantry, as representing the tank? Surely

its mobility. This means that it is capable of advancing far greater distances at a time than the infantry. What does this mean to the co-operating aircraft? It must mean a very great deal. It puts a greater onus of responsibility on the aircraft. The tank, being very blind, must rely more and more on its co-operating aeroplane, the farther it penetrates into enemy country, to discover obstacles, anti-tank precautions, suitable objectives, routes to return, topography and numerous other services.

The aeroplane, therefore, is, if anything, of greater importance to the tank than to the infantry.

The suggestions outlined in this paragraph will apply to all phases of the battle where the tank is acting in the rôle of armoured infantry, *i.e.*, Advanced Guard, Attack, Defence, or Rearguard Actions.

(b) *Cavalry and Tanks.*—The limitations of the tank have already been discussed. It is obvious, therefore, that tanks can only replace cavalry in country where both can operate successfully. Cavalry can work in most types of country which are possible for infantry, and with greater mobility. Co-operation between aircraft and cavalry and aircraft and infantry is very similar.

In cases where tanks are substituted for cavalry the same suggestions will, therefore, in the main apply. There appears, however, to be an important difference. This question depends on how far tanks will ever supplant cavalry.

In what great respect is the tank superior to cavalry in addition to being armoured?

In its mobility, *i.e.*, its ability to traverse greater distances at a higher speed. It would seem likely, therefore, that tanks will be used, not in substitution for cavalry, but as complementary to them, in country where they can operate; providing an armoured mobile screen some distance in advance. Aircraft co-operation will again be of the utmost value and may provide the link between the two mobile screens of an advancing army, or conversely of a retiring army.

(c) *Artillery and tanks.*

The most efficient form of protection against tanks up to the present is

(i) Artillery.

(ii) Tanks.

How can aircraft assist in this respect?

Tanks can advance quite happily in face of machine gun and rifle fire, but will be defeated by concentrated artillery fire, either from special anti-tank guns, Pack, Field or other and heavier artillery. The antidote to artillery fire is counter-battery work by our own artillery. The problem arises at once, however, as to how the artillery is to protect the tank, when the tank is capable of advancing at a very much faster rate than the artillery. So long as the tank remains within supporting distance of its artillery the aeroplane can help by directing the fire of this artillery and keeping the tank informed of danger zones, but after this the tank and the aeroplane must fight their after battles. Now aircraft can help by attacking the batteries, concentrating on the tanks by bombing and machine gunning, and perhaps more effectively still by dropping smoke screens or gas bombs. It would appear therefore, that the tank will be deprived of its most needy ally at a time when it may most need it, and will have to rely very largely on aircraft and surprise to break through the enemy's artillery and anti-tank zone.

In the second case let us consider the question of the tank as an anti-tank weapon, and on the principle of "set a thief to catch a thief," it is probably a very effective one.

Here we are up against a very different problem, with little or no data to work on. Tank only engaged tank on two occasions during the last war, and on the second the hostile machines withdrew immediately on the approach of our own.

The first occurred on April 24th, 1918, and the lessons learnt were very few, if any. We are now contemplating an action between what are virtually two land ships. Each force will be moving in some formation, over possibly undulating country, with the object

of destroying as many of its opponents as possible. Here, surely we have the elements of a naval battle on land. How can aircraft help in an action of this sort?

Firstly I think by reconnaissance. It will be their duty to discover the enemy's forces, their strength, armament, speed, direction and formation, just as a fleet reconnaissance aircraft does for the Navy and in addition they must discover the best means of approach for our tanks. Instead, however, of working from an aircraft carrier protected by the fleet, they will operate from an advanced landing ground protected by tanks.

We have now arrived at the stage when the forces join action, not necessarily in sight of each other, but quite possibly by indirect fire. Aircraft will now spot for the tanks under somewhat similar conditions to those of Fleet spotters. Reconnaissance will be just as necessary during this period too, in order to report the arrival of reinforcements.

Aircraft cannot torpedo the enemy's tanks in the literal meaning of the word, but they may be able to help our own tanks by bombing the enemy's.

We have then in this phase of tank warfare, all the elements of a naval battle on land, and it would seem as if the methods used by Fleet aircraft will be applicable, with certain modifications to Tank aircraft.

(d) *Mechanical Columns.*

The tasks of aircraft co-operating with tanks have been considered in relation to their rôle as armoured infantry, armoured cavalry and armoured artillery. It is now proposed to go a step farther and consider the employment "in toto" of all these arms and see how aircraft can help in this case. It is imagined now that we have a mechanicalised force, consisting of tanks, dragons and infantry in armoured lorries, the whole constituting a raiding force, for the penetration of the enemy's lines and the destruction of his nerve centres.

Such a force may be expected to penetrate 50 miles or more behind the enemy's lines. To carry out such an operation successfully surprise is the most essential factor, and to secure surprise it will be necessary to prepare the expedition with the utmost secrecy, to keep

its destination dark until the last moment, to abstain from or strictly limit W/T communication with H.-Q., during the operation, and to be kept fully supplied with information during the actual advance and retirement.

How can all this be achieved successfully? mainly through the help of aircraft.

- (i) In the preparatory stage it will be the duty of aircraft to reconnoitre the possible lines of advance and by means of photographs and other data, such as location of Headquarters, gun lines, reserves, anti-mechanical vehicle, obstacles, etc., to supplement information available from maps and other intelligence sources.
- (ii) To co-operate actively with the advance during the day (and presumably at present such an advance would not be wholly confined to the night), by continuous reconnaissance, bombing and machine gun firing.
- (iii) To spot for the dragons when they come into action.
- (iv) To provide the communicating link between the mechanical raiding force and headquarters, since the force presumably will not use Wireless for reasons of secrecy, during the advance and retirement and at any rate.
- (v) To carry out the same functions during the retirement as were performed during the advance.

Before leaving this question, there is one problem which is going to present difficulties, *i.e.*, the question of communication between aircraft and column. It is obviously undesirable to use W/T or R/T during the advance and the retirement. When the column is actually in action these restrictions may be removed, but must still be limited.

During the advance and retirement, therefore, communication between aircraft and the column must be by visual signalling from ground to air and by message dropping from air to ground. The same will apply to aircraft communicating with Headquarters. During the actual operations, W/T and R/T will both be

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necessary, especially for co-operation with the dragons, but should be kept to a minimum.

5. *Inter-Communication between Tanks and Aircraft.*—The various forms of co-operation between aircraft and tanks have been discussed, but it must be at once obvious that for any really effective co-operation to be obtained, an efficient system of inter-communication must be available.

The problem of inter-communication between tanks and aircraft is not an easy one.

- (i) To consider first the question of air to ground. There are two obvious channels of communication open—one is visual signalling and the other is Wireless Telegraphy or Radio Telephony.

The first and simplest method has been tried with negative results. The tank is practically completely blind vertically in the first place and in the second it was found structurally impracticable to fit a suitable device of sufficient size to a Bristol Fighter, to be of any practical value. This method has, therefore, been abandoned.

The second method has been concentrated on instead, and, of the two forms of wireless, radio-telephony is undoubtedly the most promising. The advantages of actually being able to speak to the tank far outweigh any of the disadvantages, and the development of this form of communication has been concentrated on and is making excellent progress.

- (ii) *Ground to Air.*—The advantages of Radio-Telephony over every other form of communication are so marked, and have already been emphasised in connection with air to ground communication that it is only natural that efforts should have been concentrated on the ground end of the chain as well. The advantages and the necessity of controlling tank formations in action has doubled the importance of this form of communication.

It is satisfactory to note that great strides have been made in this direction in recent years and at last year's Divisional Manœuvres at home, quite successful inter-communication between tanks and aircraft was carried out by means of R/T.

The almost insuperable difficulties of fitting and operating successfully a visual signalling device to aircraft, do not apply, however, nearly so forcibly to the tank, and investigation of the possibilities of visual communication between the tank and aircraft have been more fruitful.

A form of clock face has been experimented with, rather on the lines of the engine room indicator on a steamship, *i.e.*, a clock face outside connected with one inside. This obviates the very undesirable necessity of the tank personnel being forced to expose themselves when communicating with aircraft.

Another possible device would seem to be a form of semaphore on the same lines. Any such form of signalling must, however, be inferior to R/T, and it is to this form of communication that we must look for future developments, regarding any others as purely supplementary in case of failure or breakdown of the main artery.

Before leaving this question there is one important point to be considered, *i.e.*, the control of R/T inter-communication. It is obviously undesirable to have, say, a whole company or even a battalion of tanks able to communicate with the co-operating aircraft. This would defeat the entire organization of the scheme. It is, therefore, suggested that only company or battalion commanders should normally be permitted to talk to aircraft, variations being permitted only when sections are operating independently; the section commander being in this case authorised to communicate with the aircraft.

6. Tactics of aircraft against Tanks.—This problem is not perhaps strictly within the scope of this paper, but it is of considerable importance and a few words would not seem to be out of place.

One of the means of helping tanks which is open to the Air Force is by attacking enemy tanks either during a tank battle or independently.

Aircraft possess five methods of attack, of which three are destructive, one preventive, and one a combination of both. The first is bombing. This will be effective against tanks, but the problem is what sort of bombs to use, having regard to the fact that a tank is not a big object from the air and is also a moving one. The answer to this is suggested to be as follows:—

- (i) In the case of attack against individual tanks, providing only a small target, a large number of small bombs is

- more likely to be effective, since the chances of a hit will be increased and they are quite capable of damaging a track and of penetrating the tank's armour if dropped from any height.
- (ii) In attacking a company of tanks or any large formation, it is considered that heavy bombs should be used. Their destructive effect is much greater and the target being of considerable size, the probabilities of a miss are much less.
 - (iii) In attacking any formation of tanks or even individual machines, gas bombs may prove very effective until such time as tanks are rendered gas proof. It is considered that the effect of compelling the crew of a tank to wear gas masks for any length of time, while working in a closed tank, would have a very lowering effect on their efficiency.
 - (iv) The dropping of a smoke screen by aircraft, either to hide our own tanks, or to mask the action of the enemy's, may in some circumstances be very useful, though its action would only be of a very temporary nature.
 - (v) The laying of mine fields in the probable lines of approach of enemy tanks might prove valuable. The mines would, in this case, take the form of delay action and/or contact bombs. By some such means as this, it might be possible to shepherd enemy tanks along special channels where concentrated artillery fire could be brought to bear on them.

7. *Type of Aircraft required for co-operation with Tanks.*—In conclusion let us briefly consider the type of aircraft required to co-operate effectively with tanks or mechanical vehicles in their several rôles.

In the first place we are co-operating with mechanicalised infantry, having a much greater radius of action. The type of aircraft, therefore, that is suitable for infantry co-operation should also be suitable for co-operation with mechanicalised infantry with one exception; it must be able to operate farther from its base, i.e., its radius of action must be increased.

In the second place the question of mechanicalised cavalry arises, and after due consideration the answer seems to be the same as in the first,

In the third place, it is mechanicalised artillery and here again the result is the same.

In the fourth, it is a whole mechanical force and again the answer must be very similar.

The conclusion, therefore, that can logically be arrived at seems to be that the same characteristics are required for aircraft co-operating with a mechanical army as for those co-operating with a normal army, with the one exception, that due to the far greater mobility of a mechanical army, a considerably increased radius action will be necessary in the co-operating aircraft.

There may be one exception to this conclusion—the case of the aircraft co-operating in the Tank *v.* Tank battle. It has been surmised that this form of action is more analagous to a Naval battle than to a land battle.

Fleet spotting aircraft have certain radical differences to Army spotting aeroplanes. This is a question which will need careful consideration, especially from a communication point of view, since spotting cannot be done by R/T at present nor is there a combined R/T and W/T set in existence. Future developments will undoubtedly solve these problems, many of which are themselves in the realms of conjecture.

The whole problem of the co-operation of Tanks and Aircraft is one of considerable interest. Both are new weapons, both have as yet untried and unexplored potentialities, both are in some ways going to be dependent on the other, and, most important of all, the combined action of these two weapons has yet to receive its real baptism of fire in the light of new developments.

THE ENGAGEMENT OF BLACK HILL PIQUET ON THE 21ST DECEMBER 1919.

*Lecture given by Capt. O. W. Toovey, M.C., at the Staff College,
Quetta, June 1925.*

Before describing the actual Engagement of Black Hill piquet or Pioneer piquet, as it is sometimes called, I will briefly summarize the events that led up to that action. They should be remembered when considering it, as they had an undoubted effect on the morale of the troops.

On the 18th December 1919, the Main Column of the Derajat Column under Major-General Skeen moved out from Jandola in order to clear the Sarkai ridge. After that had been secured it was to advance and take the Spinkai Ghash, with the idea of covering the occupation of a camp on Palosina plain, 3 miles N. N.-W. of Jandola. The Sarkai ridge lies between Jandola and Palosina plain, it is about a mile downstream from the south corner of the camp shown on Map 1. The Spinkai Ghash is the point where the road from Jandola passes through the Spinkai ridge. Both these objectives were taken without much loss.

On the 19th a permanent piquet was established on the Sarkai ridge. On the same day two battalions of the 67th Brigade attempted to establish a permanent piquet on Mandanna Hill. This was a failure and resulted in heavy casualties to the troops employed.

On the 20th another attempt was made. This time in greater strength, and, with the active assistance of the R. A. F., the piquet was established successfully, and the troops were back in Camp by 16-00, but at 16-45 hours the piquet was rushed and captured by the Mahsuds.

The same day the Main Column was reinforced by the 82nd Punjabis who had been sent up from the 43rd Brigade at tank.

On the evening of the 20th, some time after the Mandanna Hill piquet had been rushed by the Mahsuds, it was decided to establish a permanent piquet on Black Hill on the 21st. Because,

as the book "Operations in Waziristan, 1919-20" says, "It was now more than ever necessary that the confidence of the troops in themselves should be restored, so an operation was arranged for the following day....."

A diagram is attached in order to assist in understanding the description of the formation of Black Hill. Its shape can also be seen from Map 1.

On the east side there is a series of ridges running roughly from Sagarzai to Spinkai ridge. On the west it is concave, dropping down steeply to the Tank Zam. This face is cut up by three or four fairly large nullahs, while the ground where it nears the Tank Zam is very broken. On both sides the surface is very rough.

Sagarzai which overlooks it, is about 1,200 yards distant from the top, and Palosina camp some 1,700 yards away on the other side. The ground between Sagarzai and Black Hill is very much cut up, and is mostly commanded by a low ridge about 400 yards from the position of the piquet. The ridge on which the piquet was built is very steep on the east side, in fact, both hands and feet were required to climb up it. This you can be seen added to the difficulties of construction and provisioning.

The eastern side, by reason of its formation, afforded excellent opportunities of covering either an advance or a withdrawal. But with the small force available, it was very difficult if not impossible to keep all the approaches to the western face under observation.

At 20-00 hours on the 20th, orders for the 21st were issued to the 67th Brigade by Derajat Column, and about 20-30 hours verbal orders were given by that Brigade to the Units concerned, to establish a Permanent piquet on Black Hill on the 21st.

The Units detailed were—

82nd Punjabis.

109th Infantry.

Two Companies, 3/34th Sikh Pioneers.

One Section, 55th F. Coy., S. M.

No. 6 Pack Battery R. A. (3.75 inch How.)

No. 27 Pack Battery R. A. (2.75 inch Gun.)

2/112th to remain in camp at 10 minutes notice.

Air co-operation was also asked for.

The 82nd Punjabis were to provide a garrison for the piquet of 1 B. O. and 60 I. O. R.s rationed for 7 days.

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As the G. O. C. Column had to go to Khirgi on the 21st and did not return until 14-30 hours, the G. O. C., 67th Brigade, was in command of Column Headquarters during his absence.

The temporary command of the 67th Brigade devolved on to the O. C., 82nd Punjabis, who was thus in charge of the operation.

Of the 67th Brigade the 1/57th and 1/103rd with the 3/34th Sikh Pioneers (less two companies) were out meeting a convoy and finishing Sarkai piquet, and the 2/112th remained in camp at 10 minutes notice.

The time of issue of the orders for the operation should be noted. It precluded all idea of the 82nd Punjabis reconnoitring the hill and its approaches, excepting the chance of so doing the next morning before the column started.

This was a serious matter, for, as you will remember, they had only arrived at the camp about 15-30 hours on the 20th. Moreover, as soon as they had arrived they had been ordered to take part in covering the withdrawal of the troops from off Mandanna Hill.

The actual strength of the Black Hill force as they paraded the next morning was roughly as follows:—

82nd Punjabis, 6 B.O.s., 400 I.O.R.s.

109th Infantry 7 „ 450 „

3/34th S. Pioneers 4 „ 250 „

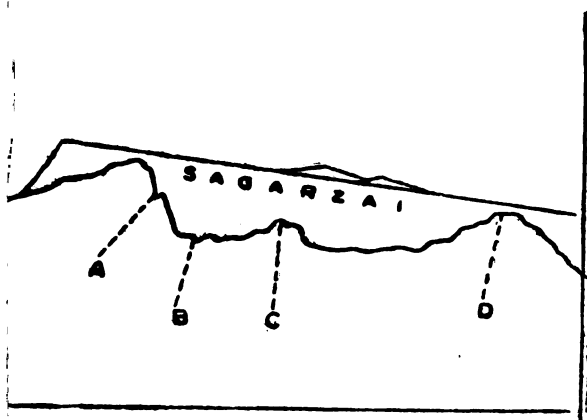
55th F. Coy. 1 „ 15 „

Included in these numbers were the 1 B.O. and 60 I.O.R.s of the 82nd Punjabis who were to form the garrison of the piquet. This actually represented a company at the reduced strength of the Battalion.

As no other carrying parties had been detailed, these 60 men had to manhandle their ammunition, bombs, rations, kits and other equipment for the piquet. First from the furthest point to which mules could be taken (point B on diagram) then to a ledge just below the piquet (point A on diagram) and later as it neared completion from the ledge into the Piquet.

They were not therefore available for the defence of the hill and should be deducted from the total.

On the 21st at 10-00 hours the column set out from Palosina Camp. Owing to the cover afforded by the Spinkai Ridge and the morning mist, the first part of the advance was made in column of route. The 82nd Punjabis leading, followed by the



feet below the piquet. Most of the Company or the 82nd
Punjabis when they took up the stores did the same.

the morning mist, the first part of the advance was made in column of route. The 82nd Punjabis leading, followed by the

The Engagement of Black Hill Piquet on the 21st Dec. 1919. 57

109th, the Pioneers and S. and M. The guns taking up a position near Camp and the Howitzer Battery in it.

Once the head of the Column had cleared the Spinkai Ridge the formation adopted was as follows: three companies of the 82nd Punjabis preceded by ground scouts advanced in lines of platoons in fours, each company having 3 platoons up and 1 in support. The right company which was the directing one had been ordered to advance on a point about 200 yards to the north of the place where the piquet was eventually sited. Each company had a front of a little over 200 yards.

A Jat company was on the right, a Sikh in the centre, and a Punjabi Musalman on the left. The 4th company, a Punjabi Musalman one (the one which had been detailed as garrison of the piquet) came along in reserve with the Battalion Headquarters some 300 yards behind the centre company.

Two companies of the 109th Infantry advanced on the right of the 82nd Punjabis extending the line another 300 yards to the north-east.

The advance was unopposed. About 11-00 hours the leading company passed over the crest of the hill and took up covering positions between 100 and 200 yards down the forward slope. The advance up the hill had been covered by three aeroplanes which returned to their base at Tank, 25 miles distant, as soon as it had been taken. In any case they had been under orders to leave at 12-00 hours.

The reserve company of the 82nd Punjabis and the 109th Infantry (less two companies) stopped at the ridge D on the diagram. This ridge had been selected as suitable for a support position and was about 400—500 yards from the crest of the hill. In between it and the piquet there were 2—3 smaller and lower ridges.

The position for the piquet was then selected by the Pioneer and S. and M. officers in consultation with the O.C., 82nd Punjabis, and the officer who was to command the garrison. Work on the piquet was commenced about 11-30 hours.

Owing to the very steep ascent to the piquet some of the Pioneers working on that side, found the climb up carrying big stones, very difficult. Consequently several of them stacked their rifles on a ledge below the piquet. This ledge (a) was about 60 feet below the piquet. Most of the Company of the 82nd Punjabis when they took up the stores did the same.

It will be seen later what effect the stacking of the rifles had on the engagement.

About 11-45 hours sniping commenced, it appeared to come from the direction of Sagarzai. It was fairly accurate and some men working on the piquet and collecting stores just below it were hit.

Meanwhile considerable numbers of the enemy had been observed crossing the Tank Zam from Pink Bowl and further upstream to the left bank. But, as I showed when describing Black Hill, its shape on this side prevented any movements on the left bank of the Tank Zam from being seen from the top, and there were not sufficient troops to allow of any being posted further down the hill. All the forward company commanders, however, were warned of this movement, and the one on the left was told to keep a careful watch on his left flank. In addition, the companies of the 109th Infantry in support sent out two piquets on the left company of the 22nd Punjabis.

The work of constructing the piquet had been progressing somewhat slowly, owing to the difficulties experienced in moving suitable stones up to the position; and also to the sniping which had become heavier and more accurate.

About 12-40 hours orders for the withdrawal were received, which had been arranged to take place at 15-00 hours, this having been decided as the latest possible hour.

The 82nd Punjabis (less the piquet garrison) were to withdraw through the support position, followed by the two companies of the 109th Infantry on the right. Finally the 109th Infantry in the support position were to retire through the permanent piquet on White Hill.

About 13-00 hours it became apparent, that, unless the construction of the piquet could be speeded up, it was doubtful if it would be completed by 15-00 hours. Orders were given, therefore to the 82nd Punjabis Company detailed for garrison, to lend as many men as could be spared to assist the Pioneers, and at the same time to get up their ammunition and stores as near to the piquet as possible. Consequent on this, most of the ammunition and rations were stacked just outside the wire.

About 13-20 hrs. there was a sudden burst of rapid and very accurate fire, lasting for about 3 minutes, directed on to the covering Companies and the working party, which caused several casualties and compelled everyone to take cover while it lasted. About 5 minutes later the Mahsuds rushed the Hill from 3 directions.

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Their first rush drove in the 2 Companies of the 109th on the right, and the left company of the 82nd Punjabis together with the two piquets of the 109th on their left. This last Company ought to have held its position. But it was composed chiefly of young soldiers, many of whom had never seen any fighting before. Their Company Commander and Havildar-Major were both killed immediately, and this, combined with the fact that they had not made proper sangars, weakened their powers of resistance. A portion of one Platoon under an old Indian Officer held its ground on the immediate left of the Piquet.

The Sikh Company in the centre, although they too had neglected to make proper cover, put up a good fight, but, being almost surrounded and having lost about half their numbers, they were driven back on to the piquet and down the slope.

The Jat Company held its ground until it, too, was almost surrounded, when it was withdrawn to the support position by its Company Commander in good order. Meanwhile the Battalion Headquarters had taken up a position on a ridge about halfway between the piquet and the support position. (This ridge is Marked C on the Diagram.) Here the remnants of the left and centre Company were collected. These consisted chiefly of I.O.S. and N.-O.S. together with three Lewis Guns with parts of their teams.

I will now relate what was happening in the piquet itself. When the first rush of the Mahsuds took place, many of the Pioneer working party had not got their rifles with them. These had been stacked on a ledge below the piquet, as I have mentioned before. These men ran back from the piquet position and scrambled down to get their rifles. Now, as everyone knows a retrograde movement in a sudden attack like this one, however good the reason for it may be, is, most contagious. And, I am convinced, that many, seeing these men rush down the ridge, thought everyone was going and did likewise. Several of the men having seized their rifles, tried to climb up again into the piquet, but were unable to do so before the Mahsuds were round it.

The Officer in charge of the Working party of the 3/34th Pioneers, who was the senior officer in the piquet, eventually collected inside it, six British Officers, of these four were of the 3/34th, one S. and M. and one 82nd Punjabis. About 40 Pioneers with one Lewis Gun, 15 82nd Punjabis, with 1 Lewis Gun and five S. and M.

There were eight boxes of Mills hand Grenades in the piquet, all of which were prepared and thrown by an officer. Unfortunately the ammunition was lying outside the wire, and only that which each man had on him, was available. The piquet itself was half finished and the barbed wire was incomplete.

Once the Mahsud had gained the top of the hill, they closed in towards the piquet and directed all their efforts against it. They delivered four distinct attacks all of which were beaten off.

After the fourth attack had been repulsed, the officer in command found that his ammunition was getting very short, his grenades were expended, both his Lewis Guns out of action, and that all the survivors were wounded. He therefore decided to make an attempt to break out and reach the support position. He was able to make his intention known to the Officer Commanding the 82nd Punjabis, who, as you will remember, was on a ridge between the piquet and the support position, with his Headquarters and a few other men.

As soon as the party in the piquet dashed out, these opened rapid fire on to the piquet and the ground round it. This covering fire enabled all the survivors of the piquet to get down the slope and through to the support position, carrying with them some severely wounded officers and men.

At the same time the gunners in Camp were ordered by the Officer Commanding the Column to open fire on to the piquet and its vicinity, which they did with great accuracy. Most of the casualties from shell fire occurred in the depression beyond the piquet, and were the result of the Howitzer Battery fire. The fire caught the Mahsuds as they rushed into the piquet, and it was most encouraging to see many of them being blown sky high.

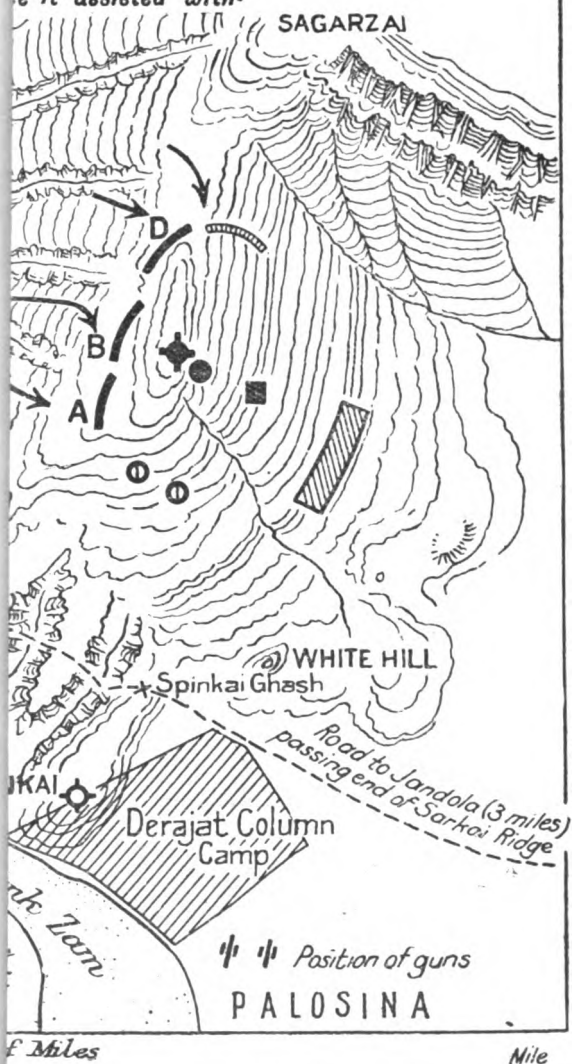
The troops in the support position also opened fire on to the piquet, but it was very wild, and I doubt if it caused many casualties amongst the Mahsuds. Unfortunately, what it did do, was to knock out some of the party on the middle ridge. For the party on the middle ridge, this period was rather like a nightmare, for everyone who could do so seemed to be firing at them, and the ricochets off the rocks added to the excitement.

After the piquet had been evacuated, many of the Mahsuds who now numbered between 800—1,000, began to work down the nullahs from the North, and got between the Headquarters of the

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82nd Punjabis and the support position. These, however, seeing what was happening, and perceiving that the piquet garrison had reached the support position safely, left the ridge and fought their way back to the support position with comparatively little loss. The Mahsuds did not attempt to attack the support position and now began to retire back towards the piquet and over the crest of the hill. At the same time they kept up a pretty accurate fire against the support position.

The 3.7 ins. Battery in Camp was now searching all the nullahs between the piquet and the support position, and undoubtedly caused the Mahsuds considerable casualties.

As soon as the Headquarters of the 82nd Punjabis reached the support position, efforts were made to collect and reorganize the men. This had been almost completed, when it became apparent that the Mahsuds were withdrawing. It was decided to counter-attack at once and try to retake the piquet.

The attack was commenced with about 200 of the 82nd Punjabis, half a Company of the 109th, and about 75 of the 3/34th, in all about 350 men and 4 British Officers.

There was little opposition and the counter-attack reached the bottom of the steep ascent up to the piquet. Here it stopped, because a few shells were still dropping on the piquet and crest of the hill, although most of the artillery fire was being directed beyond the piquet.

It was very difficult to get any message down to the guns, owing to the fact that the F. O. O. and his signaller had been knocked out, and all the signallers of the 82nd Punjabis had become casualties with the exception of one, who had with him only a dark blue flag. This could not be seen properly against the dark back ground of the hill.

However the advance up the last ascent was commenced but just at this moment the Officer leading the counter was hit. This caused a delay, and before the attack was again started the Mahsuds came over the ridge once more and forced the counter-attack back into the support position.

Although the counter-attack did not accomplish very much, it showed that the spirit of most of the men was still quite good. And it enabled the Stretcher Bearers to get in a great many of the wounded who might otherwise have been left on the hill throughout the night.

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Two Stretcher Bearers were actually working ahead of the troops, for which they received the I. O. M.

It was now about 15-00 hours, and the 2/112th began to arrive from Camp. They immediately started to make a second counter-attack, but this, too, got no further than the first one, being stopped by the fire of concealed riflemen. At 16-00 hours the whole force was withdrawn to Camp, under orders of the Column Commander, and the Mahsuds made no attempt to follow it up.

The aeroplanes, which had returned to Tank in the morning arrived back about 15-00 hours, and commenced to bomb and machine gun the Mahsuds. I think that it was due largely to their activities that there was no following up of the withdrawal.

The casualties on both sides were heavy. Ours being some 70 killed and 260 wounded, including 14 British Officers, three of whom were killed. Those of the Mahsuds were more severe, being afterwards reported at 250 killed and 300 wounded. Whether these figures are accurate is doubtful, but some of our wounded who remained out on the hill all night and who were brought in the next morning, reported that all night through the Mahsuds were removing their dead and wounded and further, when our troops went up the hill the next morning, there were still some 50 dead Mahsuds lying about. This alone is a very good indication of the heavy casualties the enemy received.

The next day another column went up the hill rebuilt and garrisoned the piquet with only very slight loss, but this time the arrangements made were very much more careful and the numbers employed were more in proportion to the ground to be covered.

Instead of two Battalions providing the covering, and the support troops, in addition to the garrison for the piquet, there were four Battalions. And there was a 5th Battalion whose sole duty was to carry up ammunition and stores into the piquet, and to assist the working party, the whole being under the Brigade Commander with his full staff.

Beside these aeroplanes were in the air continuously throughout the operation.

This finishes the story of the events which occurred in the establishing of the permanent piquet on Black Hill.

Before making a few comments on the action, there is one point I should like to touch on. Probably several of you are

wondering why the advance was not commenced until 10-00 hours which gave barely sufficient time to construct the piquet even if there had been no opposition.

The Officer Commanding the column wished to start much earlier, but was overruled, as it was considered that there would be little, if any, opposition, and that the whole operation would be finished very quickly.

When reading or hearing of this engagement, people are inclined to say that, with a few exceptions, it was not creditable for the troops engaged in it. But, before passing judgment on them, the following points should be borne in mind. At this period the Mahsuds were better led and better armed than they had ever been before, and their morale was very high owing to several successful actions.

But on our side, in addition to the British Officers being under strength, the majority were young and had little or no experience of Frontier fighting. Most of the Battalions were 2nd Battalions and had not been trained for the Frontier. Their training had been so hurried that the men had not had time to gain a thorough knowledge of the rifle, and lacked confidence in it. The 1st Battalions that were in the Force were war-weary and under strength.

The events of the two previous days, by which I mean the two attacks on Mandanna Hill, had not tended to raise the morale of the troops, and further, the aeroplanes had not remained in the air throughout the day, as in these actions.

I am sure that, if there had been only one aeroplane up, ample warning of the Mahsud concentration would have been given.

With a few exceptions I think the majority of the troops fought well. It must be remembered that the uncovering of both flanks, put the remainder of the men on the top of the hills in a very nasty position, especially as their numbers were somewhat inadequate for the size of the hill.

The party of the 3/34th Sikh Pioneers, with some of the 82nd and S. and M., who were in the piquet, fought magnificently. Throughout the engagement the men of the 3/34th were conspicuous, and it was most unfortunate that all of them had not got their rifles when the first Mahsud rush took place.

A word must also be said for the party of the 82nd on the ridge between the piquet and the support position. For, if they had not held on there, it is very doubtful whether the party in the piquet would have been able to get back to the support

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position, as they did. Again the fact there was no difficulty in getting the counter-attack going, shows that there was no lack of spirit in the majority of the men.

As the book "Operations in Waziristan" says "Had our troops been able to recapture and hold their position it is possible the Mahsuds would have sustained a reverse which would have much accelerated the end of the Campaign. As it was the Mahsud losses were greater than in any other engagement with the exception of "Ahnai Tangi."

The Mahsud attack on Black Hill piquet is a very good example of fire and shock action. Their organization was excellent. The rapid fire opened on to the top of the hill about 13-00 hours, enabled their main force to commence the ascent of the hill unseen. And the rapidity with which they came up surprised effectively our covering troops.

The lessons to be learnt from this action are—

Firstly.—Reconnaissance before an action is most necessary. If the Commander of the Column and other officers had been able to make even a Field Glass reconnaissance, it might have made a considerable difference.

Secondly.—Covering troops must be able to observe all approaches and to cover the ground in front of one another. This was not carried out correctly in this action.

Thirdly.—In Frontier Warfare troops must be trained to shoot quickly and accurately. The shooting during this action was very wild, due chiefly to lack of training.

Fourthly.—The fire of Lewis Guns must be carefully co-ordinated. Instead of using them as close support weapons, some were placed right in front where they were speedily knocked out by the Mahsuds, who appeared to concentrate fire on them.

Fifthly.—The importance of having some Machine Guns with any force fighting on the Frontier; for these weapons by reason of their accuracy and long range form an admirable backing as a support to an attack or withdrawal. A few of them would have been invaluable on this occasion, and the lack of them was sadly felt.

Sixthly.—Aeroplanes can be of great assistance in giving warning of hostile movements in country where observation from the ground is difficult. By bombing and machine gunning the tribesmen they held a withdrawal very considerably.

Lastly.—When fighting the Mahsud it is essential to be prepared for all eventualities, and no precaution must ever be omitted.

THE EMPLOYMENT OF MACHINE GUNS IN THE CANADIAN CORPS, 1914 TO 1918.

By Capt J. K. Lawson, The Royal Canadian Regt.

1. OBJECT AND SCOPE OF LECTURE.

The object of this lecture is to describe the employment of Machine Guns in the Canadian Corps during the War of 1914—1918. It will be necessary in the course of this description to touch briefly on the developments in machine gunnery during the period under review, and the changes in organization which these developments necessitated.

Although the Canadian Forces were not organized into a Corps until 1915, it will also be necessary to deal briefly with the machine gun organization prior to that date.

2. DIVISION OF PERIOD INTO PHASES.

The period 1914—1918 may be divided into three phases in so far as machine gunnery is concerned.

- (a) 1914 up to and including the battle of the Somme, 1916, the period of gradual centralization.
- (b) November 1916 to August 1918, during which period machine guns were used under centralized control.
- (c) August 8th, 1918, until the end of the war, during which although the central control still existed and was exercised during "set piece" attacks, a considerable amount of decentralization took place whenever more open conditions of warfare obtained.

In dealing with these phases it must be remembered that the organization in the field was generally about three months ahead of that authorized officially by Canadian Headquarters in England. Each new method of employment and attendant change in organization was thoroughly tested in the field before the latter became sanctioned officially. For instance, after the Vimy operation in 1917, the machine guns of each Division were organized as a battalion with an extemporized headquarter, though machine gun battalions were not actually authorized in the Canadian Corps until January 1918.

Throughout the period there was the closest possible co-operation between the machine gun authorities of the British service and those of the Canadian Corps. The experiences of each were used by the other in perfecting their machine gun tactics and organization.

3. THE PERIOD OF GRADUAL CENTRALIZATION.

(a) Early Organization.

In 1914, Canadian Infantry Battalions each possessed (in theory at any rate) two machine guns. Later this was increased to four per Battalion. These guns were Colts, and though liable to an infinite variety of stoppages, could be obtained in the required numbers, which was not the case at that time with either the Vickers or the Maxim gun. In spite of its defects the Colt gun did good work until replaced by the Vickers in 1916.

In addition to the guns of the Infantry Battalions, it was decided, upon the outbreak of war, to organize a purely machine gun unit as a divisional reserve. The first of these units to be formed was a Motor Machine Gun Brigade of two 8-gun batteries with four reserve guns. It came to England with the 1st Canadian Division. The guns were carried on cars and motor cycles which were, however, until March 1918, used solely as a means of transport, for though the cars were partly armoured and the crews were trained in both mounted and dismounted action, they had no overhead cover.

Each subsequent division brought with it to France a 6-gun Motor Battery, but none of these batteries brought armoured cars to France with them.

The first unit was commanded by an officer who had made a special study of machine gunnery, and whose ideas were at the time considered "advanced," including as they did not only direct overhead fire, but indirect fire. The unit was trained along these lines.

It is rather difficult to understand why, even in 1914, indirect fire should have been considered a doubtful possibility. Very careful experiments had been carried out by the United States Army as far back as 1909, and exceptionally good results had been obtained even with the inferior weapons and instruments then available.

This Motor Machine Gun Brigade was the first purely machine gun unit to land in France, where it arrived in June 1915.

(b) Introduction of Indirect Fire.

By this time of course position warfare had set in and the role allotted to the unit was:—

- (i) To strengthen the front held by the Division by increasing the depth of the machine gun defences.
- (ii) To provide a Divisional reserve of machine guns.

The former of these two tasks was rendered the more necessary by the shortage of artillery ammunition at this time, and since these guns occupied positions in rear of the forward Infantry Battalions, and had ample time for reconnaissance and a good supply of accurate maps, they were given numerous opportunities for applying their training in both direct and indirect overhead fire. The machine guns of the Infantry Battalions were of course located in the forward area and sited for direct fire.

Overhead fire of any description was not at first popular with the infantry, who, being for the most part new troops, interpreted the crack of the bullet as direct evidence that they were being shot up by our own guns. Eventually one Commanding Officer made a definite accusation that one of his men had been killed by a machine gun firing over his battalion. The case was taken up at the instigation of the Officer Commanding machine gun unit, and a post mortem held, the result of which was the recovery of a number of German bullets.

The Officer Commanding machine gun unit, as a matter of fact, had felt quite confident of the result of the post mortem, as he had previously ascertained that, in order to hit the man in question, it would have been necessary for the only one of his guns firing at the time to have done so through the handle, and that without wounding the No. 1, a feat of which even the old Colt was incapable.

This, which was in the nature of a test case, went far towards reassuring the infantry, and later, when raids were instituted as a regular feature of position warfare, overhead machine gun fire was considered an essential.

Though the Infantry were reconciled however, the higher authorities had still to be convinced. The crisis with them came after the battle of Loos in Sept. 1915.

During this battle the Canadian Corps, as it had now become, organized a "Chinese attack" on the front opposite Messines. One feature of this attack was an intense fire maintained on the German communication trenches and on certain other selected

localities by a concentration of 20 machine guns, the largest such concentration up to that date which had been used in the British Army, I believe.

This produced a letter to the following effect:—

(i) Indirect fire was dangerous for the following reasons.

There were no ballistic tables for machine guns, no experiments had been carried out in this form of fire and there was considerable uncertainty as to the path of the first shot.

(ii) The practice must cease forthwith.

This letter was referred to the Officer Commanding machine gun unit whose reply was—

We have made out our own ballistic tables.

We have carried out our own experiments.

As regards the uncertainty of the path of the first shot, we never fire it, we always start with the second.

Nothing further was heard of the danger of indirect fire, and after its value had been proved beyond all manner of doubt at Vimy, it was taken up so enthusiastically by British, French and Canadian troops that there was considerable danger that the value of direct fire would be lost sight of altogether.

(c) *Formation of Brigade Machine Gun Companies.*

The realization that indirect machine gun fire could be applied over the heads of our own troops with comparative safety, at once created a tendency to withdraw the guns into positions in rear, where they would not be so liable to capture in minor raids, and from which they would be able to engage a greater number of targets, a tendency which was increased by the advent of the Lewis Gun.

The more technical training, both for officers and men, required, if indirect fire was to become a regular part of their work, together with the comparatively narrow frontages allotted to formations, and the consequent almost constant necessity for guns to fire on frontages other than those of the formations in whose areas they were situated, tended towards a more centralized control, and in the winter of 1915 the first step in this direction was taken by forming Brigade Machine Gun Companies of 16 guns each. Subsequently, as Lewis Guns became available, the machine guns of the Infantry battalions were withdrawn and the Brigade Machine Gun Companies constituted the only machine gun resources of a division.

The natural corollary of separate machine gun units was the formation of a Machine Gun Corps. Such a corps was formed in the British Army in October 1915, but no Canadian equivalent was formed until April 1917, a fact which caused considerable administrative complications.

Until the battle of the Somme in 1916, the Brigade Machine Gun Companies worked entirely under their respective Brigadiers and no higher form of co-ordination was introduced.

During this period they were only severely tested once. Apart from the ordinary trench warfare routine, raids, etc., the only event of importance was the Third Battle of Ypres in June 1916. This battle, though it engaged the attention of the three Canadian Divisions then in France, was in no way comparable to an undertaking such as that of the Somme, and the arrangement therefore stood the test.

(d) The Battle of the Somme, 1916.

In order to obtain the best results from the machine gun resources of the Corps during the Somme operation, however, it was felt by General Byng, then in command of the Corps, that some higher means of co-ordination was required, and a senior machine gun officer was therefore appointed to Corps Headquarters to perform this function.

This was in September 1916, though it was not until November of the same year that official sanction was obtained for the appointment of a C. M. G. O.

This appointment did not mean, however, that machine guns were denied to the infantry brigades. There was, in fact, never, either at the Somme or during subsequent operations, any question of depleting the number of guns actually required by the infantry for close support, in order to provide machine guns for barrage or any other form of indirect fire. The plan adopted and adhered to throughout was to allot to the infantry the guns they required, and to utilize the remainder for such rôles. Sometimes in order to get the required density the machine guns of reserve formations were used in the initial barrage, but those required by the formation itself for close support, if used, were invariably returned to the formation in time to perform this rôle.

The general allotment of machine guns at the Somme was therefore—

Each infantry brigade retained sufficient guns from its Machine Gun Company for close support work.

The remainder of the guns of the Brigade Machine Gun Companies formed divisional reserves.

Motor Machine Gun Batteries formed Corps reserve.

Divisional and Corps reserve guns supplied the indirect fire.

The duties of the forward guns do not require much comment. They were to assist the infantry in getting forward and to protect them by direct fire during consolidation.

The reserve guns, while assisting in the attack by indirect fire on selected targets, culminating in a final protective barrage, were subsequently used for the following duties :—

- (i) To remain laid on the final barrage line ready to open fire in case of an S. O. S. (This included assistance to flanking corps).
- (ii) To apply fire to special targets in accordance with the situation. (The number of guns which might be diverted from the final barrage for this purpose was limited to 50%.)
- (iii) Harassing fire during the night.

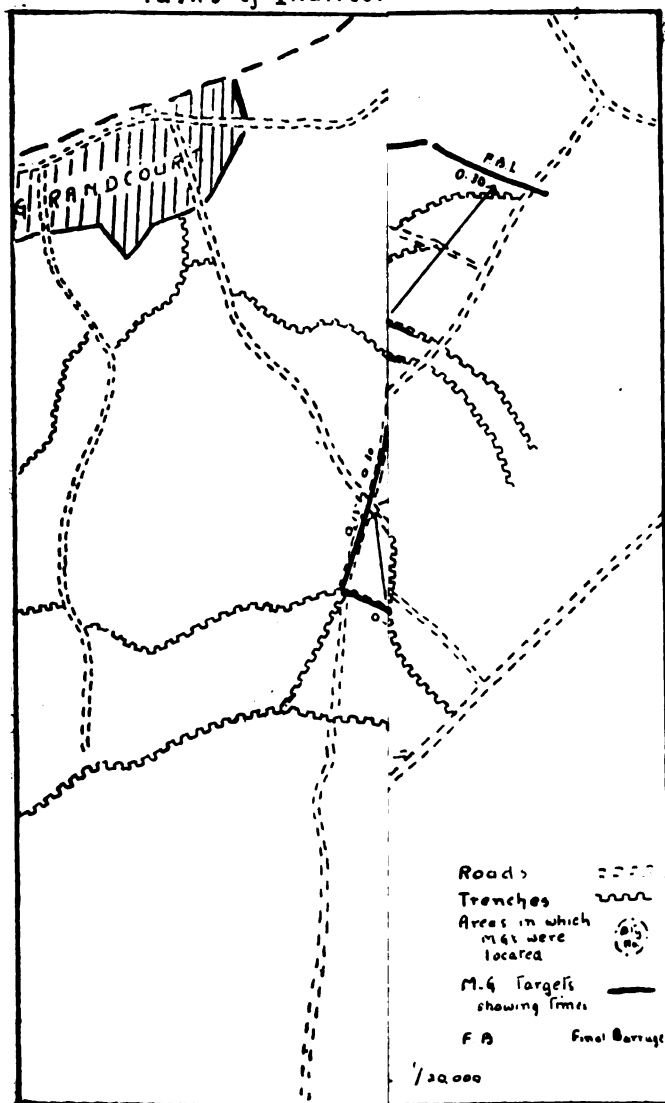
The attached sketch map shows the task of the "indirect fire guns" during the attack on Regina Trench. From this it will be seen that no attempt was made to apply a continuous barrage along the whole front, though certain guns did fire a small creeping barrage on definite localities. What was aimed at, in addition to normal covering fire, was to deny to the enemy all means of approach by which he might bring up reinforcements or advance to counter-attack.

4. THE PERIOD OF CENTRALIZED CONTROL.

The successful employment at the Somme of guns, not required for close support, to assist by indirect fire, established this form of support as a regular feature of "set piece" operations. It was now decided, however, that in future operations the barrage should be continuous along the whole front, and should correspond as closely as possible with the artillery barrage. This necessitated more guns, more elaborate and carefully worked out schemes, and very careful training.

It will be remembered that at the Somme the divisional reserve was supplied by guns from the Brigade Machine Gun Companies. A fourth Machine Gun Company of 16 guns was now added to each division for this purpose. The Corps Machine Gun Officer (now authorized) was provided with a small staff, and Divisional Machine Gun Officers were appointed.

Tasks of Indirect



unity, and finally to assist in consolidation and repel counter-attacks.

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d Divisional Machine Gun Officers were appointed.

Schemes for the barrage guns were henceforward prepared in the office of the Corps Machine Gun Officer and were issued through the General Staff in the form of instructions. Forward guns still worked directly under divisions, brigades and battalions.

A Corps Machine Gun School was established as a wing of the Corps School, special courses being run at this, and, as far as possible, every action was rehearsed in the rear area.

It will not be possible to enter into the details of all the actions fought during this period, and it is therefore proposed to describe the rôle of the machine guns at the battle of Vimy Ridge, which is typical of these actions, and only to mention those points in subsequent operations which call for special mention.

(a) *The Battle of Vimy Ridge, April 9th, 1917.*

(i) Conditions—plenty of time for careful preparation, reconnaissance and thorough training.

Ample material. No gun was allowed to fire over the heads of our own troops with a barrel which had fired over 10,000 rounds, or with certain marks of ammunition which had been proved defective.

Maps—plentiful supply of large scale.

Ground—the most favourable.

(ii) Allotment of guns—Mobile Guns, 104.

Barrage Guns, 230.

Reserve Guns, 24.

These included the guns of the 5th (Imperial) Division which was attached to the Corps for the operation.

Mobile Guns.—Each battalion of the assaulting brigades had two machine guns under its orders except those on the flanks of divisions which had four. These were supplied by the Brigade Machine Gun Companies and followed the infantry forward in close support.

The remainder of the mobile guns advanced by bounds from one intermediate objective to another, consolidating as they went. Thus the guns were distributed in depth at every stage of the advance. The tasks of these guns were to get forward quickly, protect the flanks of brigades and battalions, cover gaps occurring during the progress of the operation, engage targets of opportunity, and finally to assist in consolidation and repel counter-attacks.

On the final objective being reached the guns under battalion control took up positions as nearly as possible coinciding with the strong points which were to be consolidated as the main line of resistance. They invariably worked in pairs. Their final positions were such that the whole of the front was covered by direct fire, and instructions were issued to ensure that promiscuous trench digging did not mask these positions. In one brigade the Officer Commanding Brigade Machine Gun Company was actually made responsible for the siting of the main line of defence.

The remainder of the mobile guns moved forward in rear of the forward guns to positions such that they could form a second continuous belt of fire. These guns were not to open fire except in the case of a well defined counter-attack.

The outpost line was of course defended by Lewis Guns.

Barrage Guns.—The barrage guns were so distributed and divided for the four objectives that a density of one gun per 50 yards of front was obtained. In order to deal with possible counter-attacks a protective barrage was established at each definite stage of the operation, and a final protective barrage was arranged for during the early stages of consolidation.

Each two sections (of 4 machine guns each) were formed into a battery, and the batteries covering each brigade frontage constituted a "group" under a "Group Commander."

Divisional commanders had the power to allot secondary targets to the guns in their divisional areas, provided the final barrage was not interfered with. Similarly, on a brigade front the fire of the guns covering that front could be applied or withheld at the request of the brigade commander.

(iii) **Moves.**—The depth of the advance necessitated that certain guns should move forward during the operation in order to be in a position to reach their targets. The first of these moves was carried out by eight batteries of guns which had fired the first stage of the barrage, under cover of the guns firing the second stage, followed later by five more batteries. Subsequent moves were made by batteries leapfrogging within groups. The distance of these bounds varied, but, as an example, the guns of the 1st Division which made the first bound moved 700 yards, those making the second bound moved another 700 yards, those making the third 1,100 yards, and those making the fourth 1,250 yards. These guns remained in their final positions until withdrawn by Corps, thus adding greater depth to the defence.

All guns moving forward had to be man-handled. This made the question of ammunition supply very difficult, and in order to overcome this forward dumps were made and special parties of "carriers" were detailed. These carriers were supplied for the most part by the Corps Cavalry, who practised assiduously with the Tump-line and Yukon Pack for weeks before and then on the day discarded both in favour of their hands. The routes to the forward guns could often be traced by the discarded packs.

Subsequently, when machine gun battalions were authorised, a number of "carriers" was included in the establishment.

(b) Subsequent Operation in 1917.

The use of machine guns during the preparation prior to, and on April 9th, abolished any doubt that remained that it was the exception rather than the rule for Brigade Machine Gun Companies to be employed exclusively on the fronts of their own brigades, or to be withdrawn from the line at the same time as their brigades for rest and training. Their employment tended more and more to be on a Divisional or Corps basis. It was, therefore, decided to organise them into Divisional Machine Gun Battalions, the Divisional Machine Gun Officer becoming the Divisional Machine Gun Commander and being supplied with a small staff. This reorganisation was carried out unofficially after the Vimy operation.

The subsequent operations of the Corps in 1917 were those of Hill 70 (Lens) and Passchendaele. Hill 70 was a naturally strong position fortified with even more barbed wire than usual, for the capture of which lengthy preparation was required. During this preparation the machine guns of the Corps co-operated with the Artillery. The whole of the enemy position was divided into areas. The Artillery cut wire and destroyed trenches in certain of these areas one night, and the following night the machine guns ensured, as far as their range would permit, that no repairs were effected while the Artillery devoted their attention to other areas.

In addition, the machine guns carried out indirect harassing fire on lines of approach and other selected targets, and in the vicinity of areas treated with gas. The most suitable targets were ascertained by close liaison with the Intelligence branch.

It was naturally a matter of importance to learn the effect of all this fire, and, with this in view, a series of questions was drawn up and handed to the Intelligence branch for use in the examination of prisoners. The answers obtained showed that the harassing fire had produced good results. One man, for instance, stated

that his section had received no rations for three nights as the ration parties had on each occasion been stopped by machine gun fire.

It was about this time that the Germans increased the depth of their barrage so as to cover the area occupied by our rear machine guns. Up to this time these guns had of course been subjected to concentrations, but from now onwards the whole area in rear was covered by the enemy barrage. This increased the number of casualties, and as the machine guns were always worked with a minimum crew, it was necessary to devise some means of rapid reinforcement in order to keep the guns in action. The normal method of indenting weekly on the base and then waiting the base's pleasure was too slow.

This necessity reached its climax at Passchendæle, and to meet it the Machine Gun Reinforcement Dépôt in France was placed under the C. M. G. O. who was empowered to post reinforcements, transfer personnel from one company to another, and in short to move machine gun personnel in France in the manner best suited to the situation.

Advance Reinforcement Dépôts were established, and a system evolved whereby within 40 minutes of the receipt by the C.M.G.O. of a casualty wire, reinforcements were actually on their way from the Advance Dépôt to replace the casualties.

(c) Formation of Machine Gun Battalions.

The extemporised battalions were, however, clumsy from an administrative point of view. They consisted of a number of separate accounting units, and reinforcements and material had to be sent to separate companies instead of to the battalion. When these arrived, the D. M. G. C. naturally used them according to the needs of the moment, with the result that at the end of the operation personnel and material were hopelessly mixed.

The formation of machine gun battalions had long been advocated by the Corps, and the work entailed in sorting out this muddle apparently added whatever argument was necessary, and shortly afterwards, the Corps was asked to submit a proposed establishment. The establishment submitted was approved, and the battalions formed in January 1918, each battalion consisting of two companies of 32 guns each, divided into four 8-gun batteries.

(d) Operations in Early 1918.

The German offensive of March 1918 found the Canadian Corps once more holding Vimy Ridge. The front of the corps was

however gradually extended as troops were withdrawn to meet the German attack, until it reached a maximum of just over 20 miles (about 1/5th that held by the British Army at the time).

With such an extended front, it was impossible to obtain much depth with the troops available, so, in order to strengthen the defence, the Corps Commander decided to form a third company of 32 guns to each machine gun battalion, thus bringing the total per division up to 96 guns. The situation was considered so urgent that it was not possible to wait for personnel from England, and it was decided, therefore, to obtain it from the infantry battalions. This decision was reached at Corps H. Q. one morning, and by the evening of the following day the required personnel was beginning to arrive at the machine gun battalions.

Such a step was only possible on account of the inclusion in the machine gun battalions of the "carriers" already referred to. These carriers had been trained as gunners, and now formed the gun crews of the third companies, the in-coming infantry supplying the "carriers" for the whole battalion until such time as they could be trained as machine gunners.

On March 22nd, the Motor M. G. units, which had now been organized into one M. M. G. Brigade, were ordered into G. H. Q. reserve and sent to the Fifth Army area. At 21-30 hrs. the order for this move was received at Corps H. Q. The M. M. G. Brigade was then in position on Vimy Ridge. By 16-00 hrs. the following day they were in action East of Amiens.

The departure of the 1st C. M. M. G. Brigade left the Corps without a machine gun reserve. The 5th Canadian Division which was at the time being broken up in England to provide re-inforcements for the Corps, however, had three machine gun companies, and these units were sent out, motorised, and eventually, with the 1st C. M. M. G. Brigade, were reorganized into two M. M. G. Brigades each of five 8-gun batteries.

The strength of the Canadian Machine Gun Corps had now reached its maximum. Its organization is shown in the attached diagram. This organization lasted until the end of the War.

5.—THE PHASE OF DECENTRALIZATION.

The attack East of Amiens on August 8th, 1918, opened the third phase. In this and subsequent operations East of Arras (i.e., Canal du Nord and Drocourt Quant Line) and at Cambrai and Valenciennes, the number of machine guns employed in close support increased considerably owing to the more open

nature of the fighting. Attacking divisions usually retained the majority of their own machine guns, and it was only by using those of reserve formations, and on account of the narrower frontages, that the required density of barrage could be maintained.

For example, at the crossing of the Canal du Nord, of the machine guns of the two leading divisions, only three batteries were used in the initial barrage, *i.e.* 24 guns out of a total of 192. The remainder were under the divisions who allotted them in turn to brigades.

No difficulty was found in this decentralization such as had been found in the extemporized centralizations of earlier operations.

During this period the Corps reserve (*i.e.*, the two M. M. G. Brigades) were, together with other mobile troops, formed into a mobile force under the command of the G. O. C. Canadian Machine Gun Corps (formerly C. M. G. O.). This force, known first as Brutinel's Brigade, and later as the Canadian Independent force, was given the task of pushing forward with the object of seizing important tactical localities. In the later stages even it was decentralized and worked as two separate forces under the leading divisions.

6.—LESSONS.

The main lessons to be learnt from the foregoing appear to be :—

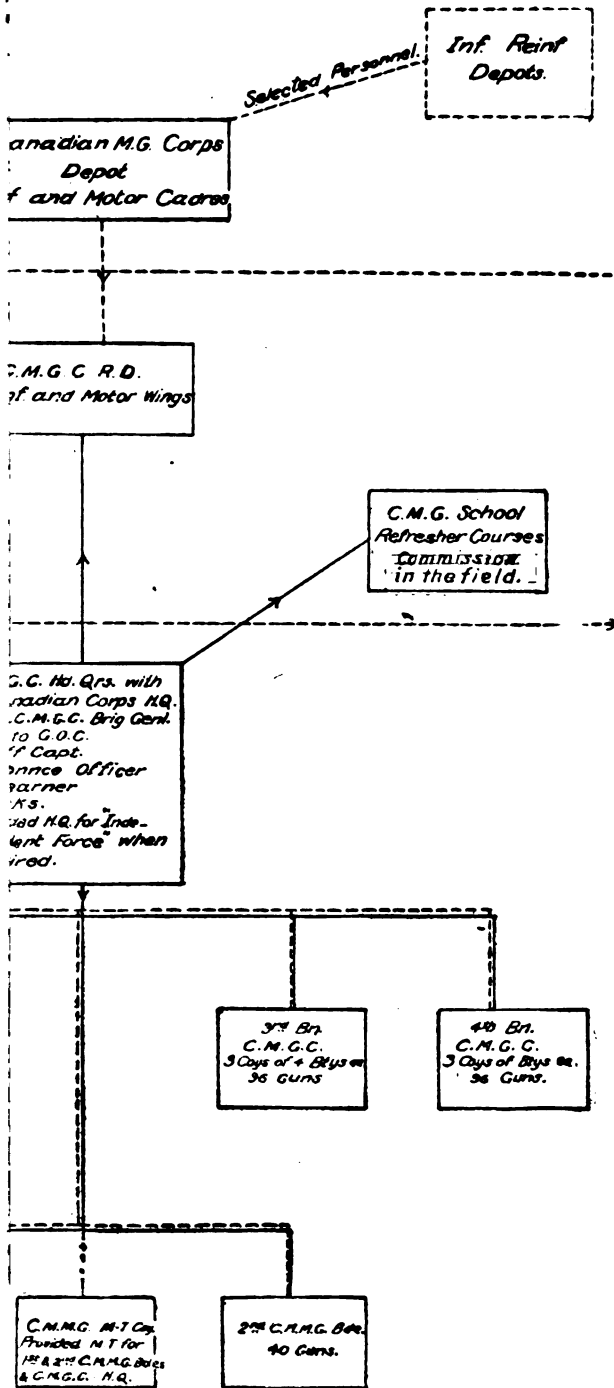
(a) That the machine gun, under suitable conditions, is capable of a more scientific rôle than that of close range direct fire.

(b) That, as conditions approximate to those of position warfare, this more scientific use will become the main rôle of the machine gun, or, to put it in other words, the machine gun is a distinctive weapon with tactics of its own, which are neither those of the Infantry nor the Artillery, but intermediate between the two, a principle first enunciated by the Canadian Corps early in 1917, repeated in S. S. 192, and now included in M. G. T.

(c) That unity of control is essential if full use is to be made of the available machine gun resources. Only by this means can these resources be allotted on a tactical basis and wastage avoided.

(d) That the value of the machine gun is as great in attack as in defence.

(e) And lastly that concentration takes time. The period under review was one of trench warfare on a gigantic scale. Each step in



Total M.G.S.

4 Bns, 96 Guns each..... 384

2 M.M.G. Bns 90 = 180

484

demanded

the process of centralization could be perfected before passing on to the next. When the time came for decentralization no such lengthy process was necessary.

One hears talk nowadays of concentrating machine guns for certain operations in mobile warfare. The highest machine gun organization is the platoon. The B. M. G. O. (or B. M. G. C., if so appointed) has no staff, and is dependent on charity even for the use of a clerk. The machine gun platoons are fortunate if they get more than a fortnight's brigaded training in a year. Is concentration under these circumstances going to be possible in the hurry of mobile warfare? Are your machine gunners going to be able to "fill the bill" if you do concentrate them?

WEATHER AND WAR.

By Captain R. J. Wilkinson, O.B.E.

Of all the many branches of Intelligence necessary for the proper conduct of war, and the many factors affecting a given situation, the weather and its forecasting is—perhaps—one of the least studied.

Cæsar and his contemporaries, we are told, employed augurs and astrologers to warn them of the suspicious date on which to join battle. The modern general employs meteorologists for the same purpose. The Germans had sixty on the Western Front during the war of 1914—21.

Campaigns, particularly undeveloped countries, are frequently as much against nature as against a human enemy.

Among the numerous attributes of the weather which affect military operations, the chief are :—

rain, mud, cloud, sunshine, moonlight, fog, snow, wind and duststorms; and the commander who can rely on an accurate forecast is in a relatively strong position for seizing the initiative at the appropriate moment.

Generally speaking, it may be said that mud and rain are the most frequent climatological influences in war. Everyone who served in the Great War will know how mud hampered the supply of ammunition and stores and how it decreased speed and power of marching. Those who have taken part in a retreat will no doubt have vivid recollections of dumps, heavy guns, etc., abandoned by reason of mud caused by rain or flood.

The floodings of rivers after heavy rain or melting snow may often spell defeat to a body of troops. A rearguard, after holding up a pursuing force, may find itself confronted with a river in spate which it is unable to cross and so is caught and destroyed. Floods may transform the banks of rivers into swamps and morasses, thus forming obstacles favourable to the defence of a position and offering, perhaps, insuperable difficulty to the attack.

In mountain warfare heavy rain almost invariably causes considerable damage to roads, tracks and bridges; fords disappear, and

such roads as are still available become slippery and dangerous for men, animals and transport. Even in flat and more highly developed country excessive rain and consequent floods may prevent the movement of troops and stores in an area, as witness the recent floods in the United Provinces whereby the Autumn Manœuvres had to be postponed.

In Mesopotamia during the war, both sides ceased operations by tacit consent as soon as rain commenced owing to the impossibility of movement in wet weather in a country where no stone exists.

Another attribute of the weather which may affect operations is cloud. If the sky is overcast by day, signalling by heliograph is impossible. On the other hand a dark, cloudy night is favourable to night attacks and raids. As regards the effect of cloud on aircraft in mountainous country, low lying cloud may be very dangerous as, in order to see his whereabouts, the pilot is forced to come down (contour flying) and may at any moment sustain an accident through being unable to rise from a depression or narrow valley, or may even strike the hill side.

Alternatively, the machine must fly at its 'ceiling' where the cold makes things difficult. Low cloud also prevents aerial reconnaissance and photography, particularly in war, owing to the practical certainty of being shot down.

On the other hand low clouds may sometimes favour surprise in bombing operations by aeroplanes, by enabling them to fly unobserved above the clouds to the objective, drop through, carry out the bombing, rendezvous above the clouds again and fly back in comparative safety to their aerodromes.

A violent thunderstorm has been utilised to cover the preparations for a counter-attack, and the assembly of tanks.

Fogs are frequently of great use to the attacker, and a source of anxiety to the defender. This is particularly noticeable in naval warfare where fog is very suitable for the approach of submarines and small surface craft.

What is known in journalese as 'glorious weather' is favourable to aeroplane observation and for open warfare generally.

Snow can be nearly as great an obstacle as mud, but it has been used to the advantage of the attack. Troops have been clothed in white overalls so as to be invisible against the snowclad hills until they were almost on top of the defence.

Snowslides may become a source of danger to troops on the march in mountain country; the danger of floods from melting snow has already been mentioned.

The effect of a burning sun on the marching and fighting powers of troops needs no amplification, especially to any one who served in Mesopotamia or Palestine.

Food is more difficult to keep in a hot country. Water is scarce. The heat dries up the roads and causes thick dust which together with the flies that abound, carry infection. Resistance to disease is lowered. And last, but not least, the dead require prompt burial before they become an offence and a fresh source of infection.

In Mesopotamia, with its intense summer heat, its dust, and its floods, the climate is, as might be expected, the most important factor in any plan. During the operation in that country large numbers of officers and men became non-effective through heat stroke and tropical diseases.

Another effect of heat, in desert countries, is mirage, which makes visibility very bad, rendering accurate gunnery difficult and visual signalling impossible. Not only is visibility bad, but things visible are distorted and magnified out of all recognition. It is said that the final route of the Turks at the battle of Shaiba was due to their mistaking in the mirage, an A. T. cart company for a cavalry brigade.

A high wind means less aerial activity, it causes atmospheric disturbances which often prevent wireless reception, and in standing camps there is always trouble with tents, etc.

A prevailing wind can be of use to the side having the 'weather gauge,' i.e., from whose direction the wind is blowing, in circumstances where gas or smoke is used. Wind, however, is more liable to sudden variation perhaps than any other attribute of the weather, and it must therefore be used with caution and expert knowledge. The use of gas in changeable winds is obviously fraught with considerable danger to one's side, to say nothing of the inconvenience and difficulties of communication between officers and men caused by the wearing of gas masks.

If the wind is very light the night is the best time to use certain gases, as moving air tends to move down any slopes, whereas by day the general tendency of air is upward and therefore likely to dissipate gas.

In a flat desert this fact remains true. The reason lies in the diurnal variation of turbulence (or gustiness, or eddy motion). Except on stormy nights, the air motion is practically eddy-less by night. Daytime brings eddies (bumpiness) which scatter gases quickly in a vertical direction.

Another point about wind which affects warfare is the fact that the upper air frequently blows in a different direction from that near the earth's surface. This is a factor of great importance in long range gunnery where the shell, at the maximum point of its trajectory, ascends as high as ten thousand feet and even more, according to the range and calibre. If the upper air is blowing in a different direction from the lower air it is obviously necessary to make a double correction for wind to ensure accurate shooting. The measurement of the direction of the upper air is carried out by means of gutta percha balloons and a theodolite.

Having recapitulated the various attributes of the weather and their influence on the operations of war it now remains to consider what means are available for forecasting the probable weather conditions.

Weather forecasting as an exact science has been in existence for over 60 years. One of its fundamental principles is that weather travels, and, if we can ascertain what weather there is within range and in what direction it is travelling, we can warn one part of our area of changes which have already appeared in some other part. The speed of travel is very variable, but averages approximately 300 miles a day. Each country has its Meteorological Department which bases its forecasts on synoptic charts. The definition of a synoptic chart is a map of the geographical region under consideration, showing the distribution of the various meteorological elements over that region, for the same point of time, or for the same interval of time, e.g. pressure, temperature, wind, cloud, etc.

A military commander who uses weather forecasts in forming his appreciations is obviously in a better position to form a successful plan than one who leaves the weather to chance. The Daily Weather summary of the Meteorological Department can be supplemented by reports from local stations. Consider, for example, a District Commander on the North-West Frontier. Weather disturbances there are known to come from the West in winter and spring and the South-West in the monsoon. If, with this knowledge, he chooses his weather reporting stations

according to the season, and uses these reports in combination with daily weather summary of the Meteorological Department, he is in a very good position to forecast the probable weather in the district, and can with greater certainty foresee if the weather is likely to interfere with the march of a column or convoy.

The information required from reporting stations, would be cloud, rainfall, general state of weather, visibility and the force and direction of the wind.

The foregoing is not intended to be anything more than a sketch of the effect of the weather on warlike operations.

Weather reporting and forecasting for a comparatively small area is neither difficult nor complicated. It involves no more than the accurate reading of simple instruments, the completion of a form, and the application of definite rules.

Any one desirous of learning more about this fascinating subject cannot do better than study "Forecasting Weather," by Sir Napier Shaw.

THE AFFAIR AT QATIA ON THE SINAI FRONT 1916.

*By Major-General Sir George F. MacMunn,
K.C.B., K.C.S.I., D.S.O.*

THE GENERAL SITUATION.

Now that the Great War is getting so far behind us, we see that our probable military future for some years to come, if not as we hope, for ever, must be in such smaller wars as have been recorded in our history since the days of the Peninsula at Waterloo. The world round is so disturbed after the spectacle of Europe tearing itself to pieces, that it would seem probable that for many years to come we may find ourselves involved in small wars, in the interest of the world peace. That being so it is desirable to study the lesser happenings in the Great War with perhaps even more profit for the immediate future, than the greater lessons and happenings.

From the above point of view an account of the Affair of Qatia may be of interest, and it has been my duty recently to study this event also from the point of view of the historian. For those who may not know, and they may fairly be many, where Qatia is, it may be said at once that Qatia is an oasis lying on the road from Egypt to Palestine, east of the Suez Canal, and on the ancient road from El Qantara to Gaza, known in the Bible as 'The Way of the Phillistines.' For many miles east of the Plain of Tina lie a series of palm groves and oases, the remnant of the ancient cultivated and irrigated area watered by the long dry Pelusiac Channel of the Nile.

It will be well to place the pieces on the board. It will be remembered how the Turks under the Turkish General Djemal Pasha, (the big Djemal), but practically lead by Colonel Kress von Kressenstein, the extremely energetic and competent German General Staff Officer of the German Mission with the Turks, led some 20,000 men across the Sinai Desert to attack the Indian troops defending Egypt and the Suez Canal. How having made a very wonderful march their attack died away and were hardly pressed after the sharp handling from the Indian troops they first

ran into, is a story by itself, and a poor ending to a fine venture. This was in February 1915, and all that year while the British were attacking Gallipoli, Turkish attempts on the Canal were confined to small raids and a few attempts to place mines, one of which actually sunk a vessel, but in one of the lakes and not in the fair-way. Preparations however were being made for an attack later on, and a railway line was being brought down through Beersheba and out across the desert with the object of getting heavy guns within reach of the Canal.

The War Cabinet and the General Staff were much exercised in their minds at Turko-German intentions as regards Egypt, once the pressure on the Dardanelles had been withdrawn. Lord Kitchener himself studied the question on the spot, and after much discussion it was decided that, at any rate till the troops leaving the Dardanelles had recovered their health and been re-equipped, the only possible course was a passive defence of the Canal on a line some miles east of it. This line was carefully selected and entrenched with a series of rail (2'6") pipe and motor road connections with the canal bank at several different points.

Sir Archibald Murray, who had taken over the command of the force on the Canal (now to be known as the Egyptian Expeditionary Force), was by no means satisfied with this passive line, but recognized that until his force was in a better state, no other course was possible. He determined that as soon as ever he could, he would occupy the water-bearing districts lying along the northern shores of the Mediterranean amid the ruins of the ancient Pelusium district of a long abandoned delta, and eventually advance on Palestine.

The War Cabinet approved his proposals so far as the occupation of the oases went, and a railway line and pipe line were commenced in the spring of 1916. The troops had by now recovered their health in the magnificent Egyptian winter, entrenching themselves unmolested out on the desert.

THE OCCUPATION OF THE QATIA OASIS.

During March and April the mounted troops were patrolling far ahead of the new entrenched position and were making the desert their own. During April an Australian mounted patrol penetrated as far into Sinai as Jif Jaffa (53 miles east of the Canal) capturing there an Austrian Engineer officer, and 33 other ranks who were making wells to support greater Turkish activity.

The railway line had now reached the limits of protection afforded by the position and it was necessary to give further protection to working parties, while the line in itself would soon allow of troops being supported out in the oasis. On April 6th, Brigadier-General Wiggin, commanding the 5th Mounted Brigade, (formerly the 1/2nd South Midland Yeomanry Brigade) was appointed to command the Datia area, and made responsible for the protection of railway construction. His force was his own brigade of Yeomanry (three regiments) and the 2/2nd Lowland Field Engineer Company, belonging to the 52nd (Lowland) Division which was to develop the water-supply at various wells. Owing to the difficulty of moving guns over the heavy sand and the even greater difficulty of water, no horse artillery at this time was attached to the brigade.

On April 9th a squadron of the Worcester Yeomanry, which had been reconnoitering far ahead, fell in with Turkish forces at Bir El Abd 15 miles east of Qatia. By the third week in April the whole of the 5th Mounted Brigade was disposed covering the front in advance of Romani, facing south-east from the sea to Bir El Hamiza and located as follows:—

Brigade Headquarters and Gloucester Hussars at Romani.

Worcester Yeomanry Qatia.

Warwickshire Yeomanry Bir El Hamiza.

On April 19th an outpost put out from Bir El Hamiza had been attacked by a force of Turks and Bedouins and their horses stampeded.

April 21st, a squadron of the Worcester Yeomanry were pushed out to Oghratina with some of the field company, a dismounted unit.

April 22nd, a second squadron was sent to join them at Oghratina, and a squadron of the Gloucester Hussars moved up from Romani to Qatia to take their place till the arrival of the 5th Australian Light Horse which was on its way up to reinforce the front in view of the obvious Turkish activity. This regiment was due on the 23rd.

Qatia itself was 18 miles in advance of the main line, which ran through a point known as Hill 70. Hill 70 was held by the 1/4 Royal Scots Fusiliers, while 5 miles ahead and 13 miles in rear of Qatia, was the post of Duiedar, held by 120 rifles of the 1/5th Royal Scots Fusiliers, and some details of the Bikaner Camel Corps and dismounted Yeomanry, 156 rifles in all,

By April 21st the 2' 6" line from Port Said was approaching Muhemdia and the standard gauge from El Qantara was within 3 miles of Romani. The area therefore was now ready to hold more troops, as water could be brought by rail till the pipe line was ready to bring the filtered water from the Sweetwater Canal, which was being syphoned across the Suez Canal and pumped on. The 5th Australian Light Horse was but the first instalment of a stronger force. Unfortunately the Turks either by good luck or good management were able to forestall them.

It has often happened in history that both opponents have stated simultaneously on an enterprise against one another. That tried and determined soldier Kress von Kressenstein was about to repeat in another form, his exploit of February 1915. The raid that he made can now be described more accurately than when Sir Archibald Murray wrote his original despatch, we have Kress's own description and also the results of the enquiry held when our prisoners were returned.

The 3rd Section of the Canal Defences had been commanded by General Horne who had selected the desert line to be held by the troops returning from Gallipoli. On April 9th however he and the Headquarters of the XVth Corps, moved to France, and Major-General the Hon. H. Lawrence, commanding the 52nd Division took over command of this Section.

On April 22nd Brigadier General Wiggin with the approval of Section Headquarters had planned a raid on the small Turkish force reported at Ber El Mageibra, from whence had come the party who had raided his outpost on the 19th. On the evening of the 22nd the force was disposed as follows:—

At Oghratina on the left ... Two squadrons of the Worcester Yeomanry (less 3 troops), and the 2/2nd Lowland Field Company.

At Qatia in the centre ... 1 squadron Gloucester Hussars with machine gun section, 40 dismounted Yeomanry details. Various details R. A. M. C., R. A. V. C., etc.

At Bir El Hamiza on the right... The Warwickshire Yeomanry (less 1 squadron), and 1 squadron and 1 troop of the Worcester Yeomanry.

At Romani in reserve ... The Gloucestershire Hussars (less 1 squadron and 1 m.g. subsection). One troop was also some way away with Brigade Headquarters.

Brigadier-General Wiggin had himself come to Bir El Hamiza on the 22nd bringing with him the headquarters and one full squadron of the Worcester Yeomanry, with whom was Lieutenant-Colonel Coventry commanding that corps, to carry out the intended raid on Bir El Mageibra.

As ill luck would have it, he started his raid, at the same time that von Kressenstein was starting his on Qatia. Wiggin arrived at El Mageibra at early dawn, found there an empty but considerable camp. He dispersed a handful of troops, took 6 prisoners and destroyed the camp. He was back at El Hamiza by 9 hours having marched 16 desert miles.

It would be as well here to say a word of the desert. It consisted of soft sand alternating now and again with harder stretches amid continual sand hills and dunes, many of which reached to a considerable height. The dunes were often covered with a small green bush and desert scrub, which the morning mirage magnified greatly. From Romani and Qatia onward lay the water bearing palm oasis, with groups of palms round brackish wells, with here and there patch of white salt marsh usually dry.

It was over 16 miles of this country that General Wiggin's horses had marched and while still ready for more work, water was imperative. On arrival back at El Hamiza, he received the news of an attack on Oghratina, which will now be described.

THE ATTACK ON OGH RATINA.

As Oghratina had only recently been occupied, not much had been done in the way of entrenchment, but the camp was on the alert and according to outpost routine stood to arms at 4 o'clock. A dense white sea fog prevailed. Suddenly the sound of pumps at work at the wells five hundred yards south-west of camp was heard by the sentries of 'D' Squadron on the left of the line. It was thought that this must be a patrol of 'A' Squadron watering, but Captain E. S. Ward ran down the slopes to reconnoitre. He almost ran into a party of some 60 Turks in the Date Tree Hod south of the wells. Hastily retreating and gathering together what

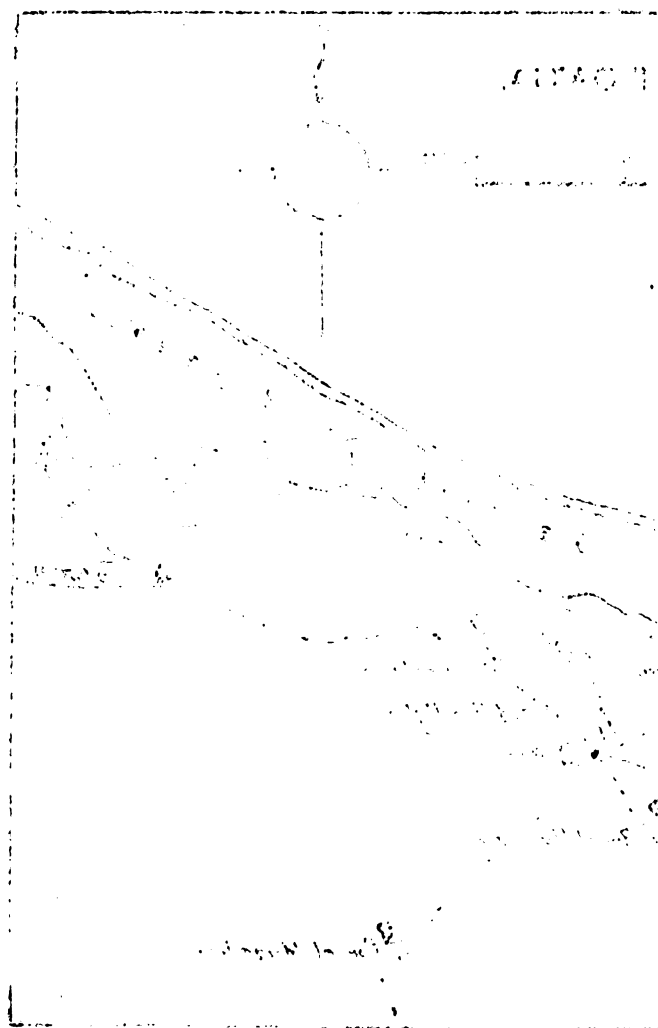
men he could, he opened fire on the Turks at point blank range, inflicting casualties on the party and forcing it to retreat headlong. Captain Ward followed them up, but was speedily met with very heavy rifle fire, which showed only too plainly that it was no small party he had run into. He therefore fell back to his original position. About 4-15 hours 'A' Squadron on the right was heavily attacked, and by 5-15 the whole camp was being attacked from north, east, and south-east, in overwhelming strength. Almost from the first the troops were engaged from a range of fifty yards or less.

Major Williams-Thomas in command of the detachment had orders to retire if attacked in strength, but found himself unable to do so without leaving in the lurch the dismounted men. Such orders are always hard to carry out, and no doubt it should have been decided previously, that if an attack did develop in force, there should be no compunction as to abandoning the engineer detachments and dismounted men rather than lose the whole party. Williams-Thomas always considered that if he had not felt himself so hampered he could have fought a rear guard action back to Qatia and Romani. He stated that by 7-45 eleven Yeomanry officer and 135 other ranks had become casualties. The remnant of 'D' Squadron were driven back on the second line of defence held by the engineers, but that position was soon swamped also and the enemy had the whole camp at his mercy. Half the rifles of those who remained able to fight were clogged with sand, further resistance was useless and the remnant surrendered. William-Thomas estimated the enemy at some 1,500 which corresponds with the account from the Turkish side.

With the surrender of the remnant the whole Oghratina force of two squadrons and a company of engineers, was wiped out, and nothing more heard of them till after the Armistice.

THE ATTACK ON QATIA.

At Qatia, 'A' Squadron of the Gloucester Hussars under Captain M. G. Baker stood to arms to 3-30 hours. Horses were saddled and a patrol sent out. It returned having seen nothing in the mist. Soon after an enemy patrol approached and fired into camp, but retired swiftly. Heavy firing was now heard from Oghratina, but at 6 hours a telephone message was received from there that attack had been repulsed. Half an hour later came a message to say that it had been renewed. A mounted orderly



wells. He ordered Colonel Coventry to move the 1st Squadron first (his other two squadrons were the Oghratina detachment) and move with it to Qatia. This squadron moved off at 9-50.

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from Romani reported also that Duiedar 13 miles in rear was being attacked. At 7-45 another enemy patrol was driven off.

All firing had ceased from the direction of Oghratina, and no more messages came through. For an hour there was complete quiet during which the fog lifted. At 8-45 Baker pushed out a patrol in the Oghratina direction, which immediately ran into two lines of Turks with some 300 men in each line advancing extended against Qatia. They were a mile and a half away and were followed by a formed body. Camelry were also visible advancing south-west evidently to surround the post. Captain Baker, like Major Williams-Thomas at Oghratina, had orders to retire if attacked in force, and whether or no he could or should have done so will be discussed later. But it should be noted that he was in telephonic communication with his brigadier's temporary headquarters at Bir El Hamiza and received no orders to withdraw.

At 9-45 a mountain battery opened fire from a ridge north of Er Rabau. The first twenty shells fell over, after which they burst in his horses lines killing or maiming them all in a few minutes. As the guns opened the infantry commenced firing at a range of 800 to 1000 yards, rushing forward by small parties. Shortly after this a squadron of the Worcester Yeomanry as will be related later arrived from General Wiggin, and helped stave off catastrophe for some hours. Captain Baker paid with his life for his mistake, if mistake it was, of not retiring immediately he was attacked.

BRIGADE HEADQUARTERS.

Brigade Headquarters had been as we have seen at Romani, with the reserve regiment, but Brigadier-General Wiggin was unfortunately conducting the raid on Mageibra Wells. On his return to Bir El Hamiza, at 9 hours he learnt that Oghratina had been surrounded, and soon after a message came that Qatia also was attacked, and it will be noted that he gave no orders to the Qatia squadron to retire. He could do nothing until his horses which had just returned from their long night march, had been watered. This was not easily accomplished at small desert wells. He ordered Colonel Coventry to water the Worcester Squadron first (his other two squadrons were the Oghratina detachment) and move with it to Qatia. This squadron moved off at 9-50.

By 10-30 the first of the Warwick Squadrons had finished watering and started off at once, while the Brigadier himself started with the second Warwick Squadron a quarter of an hour later, which given the circumstances was not bad going. His intention was to get astride the enemy's line of retreat with the Warwick Squadron and strike him in the neighbourhood of the Hod Um Ugba north-east of the camp. Half way between Hamiza and the Qatia camp however he became engaged with the enemy's flanking troops, and after fighting his way forward for a mile, was brought to a standstill about 1-45 by strong opposition. His men and horses were tired out. Soon afterwards machine gun fire was reported from the direction of Bir El Hamiza, where there were a number of camels and some stores guarded by an officer and 35 men of the Warwickshire Yeomanry who were dismounted. From his position he could see tents burning in Qatia camp and a commotion among the camels there. He decided that he could do no more to help, and that his best course was to fall back on Hamiza and pick up this detachment.

Ill luck however certainly dogged British action this day, for on returning it transpired that the firing was an exchange of shots between British planes and Turkish parties retreating from their attack on Duiedar that had failed, and whilst he had been on the Turkish left flank, his reserve regiment from Romani had been attacking the Turkish right and the enemy had been in none too comfortable a position.

THE ROMANI DETACHMENT.

Lieut.-Colonel Yorke had two squadrons of the reserve regiment (the Gloucestershire Hussars) at Romani, and moved out with five troops and a machine gun subsection, at 10-15. His intention was not to move to the support of Qatia of whose predicament he had not heard, but to intercept the retreat of a column of 500 whom he was informed was retiring from Duiedar after defeat there in a disorganized condition. Shortly after leaving camp he heard firing from Qatia. Reaching some high ground he was able to see the Turkish artillery north of Er Rabau, firing into camp. He changed direction and advanced towards the guns when they ceased firing and a quarter of an hour later, were withdrawn some distance.

At 10-15 Yorke's advanced guard came under fire one mile north-west of Er Rabau. He pressed on driving back the enemy to the high ground south of Hod Um Ugba. Here the enemy was

evidently reinforced, for the rifle fire became very heavy, and Yorke found himself unable to make any further advance. It will be noticed that his advance was almost simultaneous with that of Brigadier-General Wiggin on the other flank of the Turks. Unfortunately neither force appears to have been aware of the other's presence at this time, and it was not till they had begun their retirement that Yorke caught sight of Wiggin's two squadrons to the south. He himself began a gradual withdrawal halting to let his wounded get clear to Romani, and was followed up for a short way by the Turks. At the same time their battery opened fire again from a new position but without doing any damage. At 3 P. M. Yorke's force was on a line running north-west, a mile east of Abu Hamra; at 3-30 he saw that Qatia was in the hands of the enemy, and he decided to withdraw at once to Romani as there was nothing more to be done. He remained at Romani till midnight, when, on being informed that infantry would not be sent to support him, he withdrew to railhead.

COLONEL COVENTRY'S PARTY.

Colonel Coventry left Hamizah as we have seen at 9-50, and as he approached Qatia, he saw that the camp was heavily attacked by the Turks. He dismounted his squadron about three-quarters of a mile west of the camp, and then led it up on foot to prolong the line of the Gloucestershire squadron on the left. This action considerably relieved pressure on this flank and the enemy retired some distance with loss. Thenceforward for some hours the camp held out, but under cover of machine gun fire the Turks slowly closed in on the flanks. Soon after 1-30 Colonel Coventry asked Captain Wiggin who commanded the Worcester Squadron if he thought he could get back to the horses and bring up some of the numbers three, as every available man would be wanted if they were to hold out.

Capt. Wiggin and his sergeant-major crawled down the hill, and made their way back to the horses which were some three quarters of a mile away as has been stated. While he was away, shelling recommenced and the enemy closed in, ending the matter with a bayonet charge about 3 P. M., when the survivors surrendered. Captain Wiggin was leading forward the numbers-three when he saw that the camp had been rushed. Seeing a few men running back from the line, he with great presence of mind galloped up with the led horses and rescued any that were not shot down by the Turks. In all including the horseholders some 60 men of the

Worcester and Gloucester squadrons involved, escaped. Captain Wiggin was the only officer at either Qatia or Oghratina who did so.

SOME COMMENTS.

Allusion has already been made to the difficulties as regards retirement that Major Williams-Thomas had to face at Oghratina, and the early morning fog. Captain Baker had the same, but there was little enough evidence apparently that he was in for anything beyond his powers of meeting, in view of such scraps with the enemy as he had hitherto experienced. At any rate he had little enough time for three quarters of an hour after the enemy had been seen, his horses were destroyed by the Turkish artillery. At the time, on such information as was then forthcoming at headquarters it was considered that the squadrons could and should have come away without serious loss. Later information however as has been explained discounts this considerably. The reflection as to what should have been done, or what any one finding themselves so placed in future should do is an interesting study for squadron commanders. One point however does stand out and that is the great danger of a commander being away from his command centre. No doubt the reasons which induced brigadier to conduct personally the raid on Mugeibia were excellent and at the time seemed imperative. But the inevitable consequence should anything happen was there all the time, and chance brought it into play. There is no doubt that had Brigadier-General Wiggin been at his headquarters at Romani, and the telephones, as they seemed to have been, in working order, some co-ordinated action would have taken place, which would have saved the entire loss of four squadrons and a company of engineers, and that is all that can be said. The brigade happened to come up against the activity of the very competent and enterprising Kress von Kressenstein, who was now the commander of the Turkish force in Sinai.

THE ATTACK ON DUEIDAR.

There is one other incident in this Turkish raid worth recording and one that is extremely creditable to all concerned, both for the Turks who raided so far, and the British who beat the raid off. Thirteen miles to the rear of Qatia was the connecting post of Dueidar. Its garrison of 156 rifles has already been detailed. The post was a small oasis some 460 yards from east to west and 150 yards from north to south. Captain F. Roberts of the 14th

Royal Scots Fusiliers, commanded the post. It was defended by half a dozen small works clear of the date trees. The camel lines were south of the trees, defended by two works. At 4 a.m. it was reported that communication with Qatia was interrupted, a linesman was sent out and Roberts went round his posts. At 4-30 a Yeomanry patrol went out and the garrisons stood to arms. The patrol came back without seeing anything in the dense mist. At 5-17 a sentry in the principal redoubt south-east of the oasis, suddenly saw a large number of men appear within thirty yards of him. As he fired the Turks made a rush. The garrison was creditably alert considering that the enemy was thought to be 20 miles away at Mugeibra. The fire of a Lewis gun and every rifle swept the Turkish ranks and they retired leaving twenty men on the ground. A mountain gun and machine gun now opened from the mist. However with such bad vision no great harm was done but the fire developed and about 7 A.M. the enemy tried to work round the southern flank. A small redoubt checked this, and shortly afterwards the Turks with loud shouts of 'Allah', again charged the south-eastern redoubt. Once more they were beaten off, some penetrating to within twenty yards of the wire. From then till 9 a.m. when reinforcements arrived, a fire fight continued.

At 6-25 A. M. Major Thompson, commanding the 4th Royal Scots Fusiliers at Hill 70, on the railway 5 miles in rear, received orders to reinforce Duiedar. At 7-5 he moved off with two companies ('C' and 'D') two Lewis guns and 11 men of the Glasgow Yeomanry. Arriving near Duiedar he extended at once, and reinforced the principal redoubt, and next set about enfilading the enemy still firing. Shortly after the mist lifted somewhat and a British plane dropped a message that the enemy's main body was in retreat, and that not more than 150 men were firing at the British posts. At noon two squadrons of the 5th Australian Light Horse arrived and went in pursuit of the main body, while an hour later Major Thompson attacked the Turks who broke and fled. 17 unwounded prisoners were taken and many wounded. At 1-30 the remainder of the 5th Light Horse arrived and took up the pursuit. 1 officer and 31 other ranks were taken prisoner and 75 dead were found on the field. The British loss was 7 officers and 48 other ranks killed and wounded and a good many camels killed. After dark General Wiggin and his two Warwick Squadrons reached Duiedar, and more reinforcements came up, but the Turks had disappeared.

Very shortly after this the advance of rail and pipe line allowed of the Romani and neighbouring oases being occupied in strength. In August, Kress von Kressenstein brought up a very large force and again attacked, which ended in the hard fought British victory of Romani.

The composition and strength of the Turkish raiding force is now known from the Turkish War Office, who have their historical section. It consisted of the 1st and 2nd battalions and 1 company of the 3rd battalion of the 32nd Regiment, 6 camel companies, a 75 m.m. battery of the 8th Field Artillery Regiment and 2 guns from the 9th Regiment. Its strength was 95 officers and 3,560 other ranks, (2,668 rifles) 6 guns, 4 machine guns, 225 horses, 1,009 riding camels and 756 pack camels. Had the British Air Force not been so weak at this time its advance must have been known.

A SIDE SHOW IN THE AFTERMATH OF THE WORLD WAR.

By "*Reminiscence.*"

December 1918 found my Battalion camped twelve miles north-west of the town of Salonika. It may be of interest to readers to know how we came to be there and why.

In October 1918 twelve Battalions of the Indian Army were despatched from Mesopotamia to the British Salonika Force. News of the surrender of Bulgaria reached us as we lay cooped up on our transports at Port Said.

The fall of Bulgaria opened up a fresh avenue of approach to Constantinople and so we learned on arrival at Salonika that we were to form part of a force which would land at Dadeagatch. Our orders were to march from Salonika to Stavros and there to embark for Dadeagatch. We had made one march in this direction and had arrived at Kilo 12 "General's Corner," as it was then called, when the surrender of Turkey solved our problem. What our chances of success were, it is not part of this story to discuss. It suffices to say that the Dadeagatch scheme was off; the armistice followed, and we settled down into a permanent camp at General's Corner. And now came rumours of a force being sent to the Caucasus. It is hard to say definitely what our policy was to be, but as far as could be gleaned at the time, it was hoped that the moral effect created by the presence of British Troops in the Caucasus would be helpful to General Deniken whose forces, facing northwards, were stretched out north of the Caucasus Mountains from the Black Sea to the Caspian Sea. It was also prejudicial to our interests that the Bolshevik Armies be free to penetrate the countries south of the Caucasus Mountains.

On the 19th December 1918 my Battalion, which now formed part of a Brigade destined for Batoum, marched into the English Quay at Salonika and embarked on the P. and O. Steamer Malwa.

The outstanding feature of our voyage was the comfort we enjoyed aboard the Malwa after our windswept camp at General's Corner. However the comfort of the Malwa was too good to last and all too soon we dropped anchor in Batoum Harbour.

The Port of Batoum is situated on the south-east shore of the Black Sea. It was annexed from Turkey by Russia in 1878. The Bay of Batoum is being continually filled up by the sand that is carried into it by several small rivers. It is protected by strong forts and the anchorage has been greatly improved by artificial works. The town is built on the steep slopes of the hills on its western shore. Batoum has grown rapidly in recent years. It is connected with the main line of Transcaucasia and is the chief port of the whole country for the export of Napaht, paraffin oil, liquorice, wheat, Indian corn and timber. The climate is warm, but exceedingly wet and changeable. The town is most unhealthy and has the reputation of being "filthy to a degree" which reputation it had certainly maintained up to the time of our arrival.

We found Batoum occupied by a Turkish Force estimated at about 30,000. The Commander of the Turkish Forces sent to our Brigade Commander the surprising information that his force was in Batoum to stay, and that he proposed to take no orders from the British Commander or from Constantinople. He also added that this being the situation the British Force would be given forty-eight hours to quit.

However it was a poor satisfaction he got out of the British Commander who in no uncertain terms replied to the effect that the British Force was also there to stay and that the Turkish Force would be given twenty-four hours to commence their exodus. Matter stood thus when our twenty-four hour's notice to the Turks expired and we proceeded to disembark. The Turks seeing we meant business, commenced their embarkation with such shipping as was available.

For the sake of my readers, I prefer to draw a veil over the period of settling into Batoum and our efforts to make the place liveable. "Filthy to a degree" is an exceedingly euphemistic way of describing the conditions that prevailed.

We remained in Batoum over two months during which time our task was to try and make our surroundings less pestiferous, and to assist in the work of unloading the supply ships which were building up supply reserves with all possible speed.

Early in March my Battalion received orders to proceed to Tiflis. We must now take a glance at the map of Transcaucasia and so get some idea of the lie of the country. The name Transcaucasia was originally given to that part of the

Russian Empire (in the Caucasus, Armenia and Asia Minor) which lay to the south of the main Caucasus Ridge. It then comprised chiefly the Governments of Kutais (inclusive of the province of Batoum), Tiflis, Elizbethpol, Erivan and Kars.

South of the main Caucasus Ridge a broad valley crosses the isthmus from the Black Sea to the Caspian. This valley is watered in the west by the river Rion and in the east by the river Kura and separates the main Caucasus Ridge from the Highlands, mountains and plateaux of Lazistan, Kars and Armenia. The Transcaucasian Railway runs from Batoum *via* Kutais and crossing the Mosques Mountains at a height of 3,037 feet through the Suram pass leads thence to Gori, Tiflis, Elizabethpol and Baku. The Railway is a triumph of engineering skill and its construction was due entirely to British capital and enterprise.

From Tiflis a branch line runs down to Kars *via* Alexandropol. I have neither time nor space in this brief story to do more than invite the attention of my readers to the history of the kingdoms of Transcaucasia. The story of each would fill a volume and one and all make fascinating studies.

By the Treaty of Kainardschi in 1774 Russia took these Kingdoms under her protection and administered them as a Russian Governor-Generalship with Headquarters at Tiflis. That the country under Russian protection made great strides on the road to civilization is indisputable.

Of the three main groups into which the Caucasian races are now divided the Georgian is in every respect the most important. Including all its numerous ramifications the Georgian group occupies the greater part of the Transcaucasia. It again comprises nine sub-divisions, the details of which we need not go into.

Our journey to Tiflis was uneventful though its actual accomplishment strained our patience to breaking point. On three successive days we manhandled all baggage, etc., to the Railway Station, a distance of about half a mile and, on the first two days, having waited hours for our train, we were informed by a distracted R. T. O. that notwithstanding his efforts to rouse the railway authorities and their solemn promises to provide a train, "There was nothing doing." So back went all our baggage to billets again.

However we moved at last, and eventually my Battalion, one British Battalion and a Section of Artillery reached Tiflis.

Here another strange situation arose. The Georgian Republic was hostile to Deniken, whose success, they feared, would place them under a regime similar to that from which they had just been freed. Great Britain, who was friendly to Deniken was pouring troops into Georgia to help Deniken.

Accordingly the President of the Georgian National Assembly called at General Headquarters to ask that British Troops be immediately withdrawn and also to say that the withdrawal was to commence within forty-eight hours. This ultimatum was utterly ignored and we proceeded to instal ourselves in comfortable billets. At the end of our forty-eight hours the only change in the dispositions of British Troops was that everybody was comfortably billeted and the Artillery somehow was billeted in a quarter of the town whence their guns frowned down on to the great city of Tiflis. The President of the Georgian National Assembly called again at General Headquarters, and, strange to relate, his mission this time, was to tell the Brigade Commander that the National Assembly had decided to entertain us as guests. The question of our relations with the Georgian Republic seemed temporarily solved.

My Battalion was billeted in a large school known as II Gymnasium, an Elementary Educational Institution in the very heart of the town. This school consisted of an imposing three-storied building of greystone. The School Authorities placed the two lower stories at our disposal, reserving the top story for school apparatus and furniture, etc. The place was splendidly equipped both from the point of comfort and educational requisites. The two stories accomodated my Battalion over 1,000 strong with room to spare.

We spent two months in Tiflis and, though our situation in the very heart of the great city did not lend itself to military requirements as regards parades and training, yet these two months were full of interest for us.

The town of Tiflis is picturesquely situated on both banks of the river Kur some five hundred feet above the level of the Black Sea. It is connected by a rail with Poti and Batoum (217 miles) on the Black Sea and with Baku on the Caspian Sea (341 miles), also with Kars (185 miles) and with Tabriz *viâ* Erivan (460 miles) and *viâ* Baku and Petrovsk, with the railway system of European Russia.

The summer is very warm and the winter severe. European shops, clubs, hotels, public offices, an observatory, and a fine

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Here another strange situation arose. The Georgian Republic was hostile to Danubian whose success they feared would place

opera house gave evidence that western civilization had not only penetrated, but had long prevailed, in this geographically remote city.

Ethnologically its population is made up of Georgians, Armenians and Russians, with a small proportion of Persians, Germans, Tartars, Jews and Greeks, making a total population of over 150,000.

Thomas Mitchell in his book entitled "Russian Pictures" published in 1889, describes the Georgian character in the following words. "The Georgians are merry folk, rarely allowing themselves to be depressed by the troubles of life. They love wine and music and ever seek to drive away dull care by indulging in their favourite Kakhety, two bottles being the usual allowance to a man's dinner, an allowance however greatly exceeded, when, of an evening, friends meet together to join in the National Dance called the Lezghinka."

The generation that followed had witnessed the tragedy of a world war, but the Georgian character had lost nothing of its lightheartedness.

Even to the casual observer it was patent that the state was rotten to the core. Trade was at a standstill, internal manufactures had ceased and, to the Britisher, fresh from the stability and order of England, these lighthearted Georgians were obviously going openeyed to certain disaster. Yet Cafés, Clubs and the Opera house did a flourishing trade.

Between January and April 1919 British reinforcements continued to arrive in Trauscaucasia and by the end of March 1919 our dispositions were considered satisfactory; Troops being distributed over the Transcaucasian Railway from Batoum to Baku.

We were now to enter upon another phase of our adventures. The fall of Russia in 1917 had exposed the Right Flank of our Armies in Mesopotamia. For a space of three months, the Armenian Army, such as it was, had stood between the Turkish Forces and the open road round our unprotected right flank. Within those three months our right flank was extended and the Turkish chances of envelopment were lost.

The desire for revenge coupled with the agelong hatred of the Turk for the Armenian, formed motives that needed no further spur to action, and the Turk eventually exacted from Armenia a terrible penalty. But of this more later,

Reports and petitions from Armenia told ghastly stories of the conditions that prevailed, and, moreover, an American Committee for relief in the Near East, came forward with proposals for sending grain into the country. Under the circumstances it was felt that in the cause of humanity something ought to be done to help the starving inhabitants of the country.

The Colonel Commanding my Battalion was selected to proceed to Kars as Pre-ident of a Military Mission and to report on the situation with all possible speed. About a fortnight after his departure my Battalion was ordered to proceed to Kars.

The Battalion moved from Tiflis to Kars in two trains. Each train consisted of goods wagons for the men and one large compartment for British Officers. As I was Quartermaster at the time, I had to proceed with the first train and arrange for billets, etc. on arrival at Kars.

We left Tiflis at about 3 P.M. on the 4th April. We travelled very slowly indeed. There were interminable halts at small stations for no known reason. The morning of the 6th April found our train halted at Alexandropol. I cannot hope to describe adequately the grandeur of the country through which we were travelling.

During the previous day our appreciation of the scenery had been marred by an atmosphere of dire tragedy that overhung everything. There was no getting away from it and series of deserted villages and ruined farms impressed it vividly on one's mind.

But here, at Alexandropol—in the province of Erivan, we were within the borders of Russian Armenia and, could the scenes of desolation of the day before be surpassed, here was one that surpassed them.

The town of Alexandropol—once called Gomri was given its present name after the Russian Empress Alexandra. It is situated 5,233 feet above sea level and was strongly fortified by Russia. Previous to the war its population was about 35,000. The railway runs through the centre of the town which slopes down to it on the north and away from it on the south so that it was possible to get a good view of the town from the Railway Station. From our train we looked out onto a veritable "abomination of desolation." There had been some very fine churches in Alexandropol; there was no sign of them now. The town had been systematically and wantonly destroyed, and all that was

to be seen were the charred remains of what must have been fine buildings and a few starving people picking their ways aimlessly among the debris.

Suddenly a man who had been loitering about the station staggered up to the Mess Compartment where a few officers sat and begged for some bread. He spoke English with an unmistakable American accent and told us he had a wife and seven children who were dying of starvation under his eyes. We gave him all the bread we could spare. He also told us that he had been several years in the United States and had returned to his family in Alexandropol on the outbreak of War. I was glad when our train left Alexandropol. The place was depressing to an intolerable degree.

From Alexandropol to Kars is a distance of 30 miles but the gradient is severe and we moved at a crawl over a vast expanse of snow-covered plateau climbing by degrees to over 6,000 feet. The fact of this plateau being under snow in April will give the reader some idea of the severity of the winter in the country. However spring was coming and the melting snow revealed in several places derelict Ammunition Dumps and other irrefutable signs of the struggles of the retreating Russian and Armenian Armies.

About half way between Alexandropol and Kars we stopped at a station called Chizelchacha. This place was made up of a solitary village of a single street, but a couple of hundred yards off there were hot springs and from these, our engine driver filled himself a barrel of mineral water. Thence we crawled on over the remaining fifteen miles of monotonous plateau, till at about 4 P.M. that evening we trudged into the Railway Station at Kars.

As Kars was to be our home for several weeks, we naturally looked round us eagerly to take stock of our surroundings. The same picture of desolation confronted us. However there was no time to waste, we had only an hour of daylight in which to unload our train, so we immediately directed all our energies to this main task.

The Colonel had succeeded in arranging billets for the first train-load and guides were waiting to lead us to them. We had with us a month's rations for men and animals so our unloading was a big task. However by 9 o'clock that night we had everyone housed in our billets which were about two miles from the station.

Our second train was to arrive two days later, and during these two days it was our job to get billets ready for the remainder of

the Battalion. This task of getting billets ready for troops would appear, to the uninitiated, to be a simple matter when there were scores of empty houses to be had. Yet I can assure you, and I speak with the authority of the then Quartermaster, that the task was almost super-human. The Turk had been in Kars, and of course it was Batoum all over again, and this being the case I must again draw a veil over the period of settling in. Suffice it to say that after the expenditure of prodigious quantities of Cresol and sundry other disinfectants, the billets were made habitable for the people in the second train.

By the 11th April the Battalion was completely and comfortably installed in Kars. We now had time to look around us. Take a glance at the map of Transcaucasia, you will see the town of Kars is situated in the centre of the province. It is 30 miles south-west of the Alexandropol and 130 miles north-east of Erzerum. The town is built on the eastern end of a spur of the Soghanli Dag, the site of the town proper being cut off from the rest of the range by the river Kars, a sub-tributary of the Araxes. To the south-eastward opens up a vast plain. A certain writer describing Kars says "Owing to the bareness of the dark basalt hills and the sombre colour of the buildings, a touch of melancholy mingles with the picturesqueness of the view." The description was written when Kars was a flourishing town, you can then imagine how this melancholy was enhanced when the ruins of the town were included in the picture.

After the Russian Debacle of 1917, their Armies fell back from Kars leaving the fortress intact. The Turks immediately put in a small garrison, until about the middle of 1918 when their internal affairs forced them to withdraw it. The people in Kars told us that the Armenian inhabitants had themselves burnt the town before their flight rather than leave it to the Turks, and before their withdrawal the Turks very thoroughly completed any details of the work of destruction which the townspeople had left undone so that between them it was a sad spectacle that was left to greet us in 1919. Strange to relate, even the Turk with his insatiable passion for wanton destruction had, with an eye to his future needs, left the fortress intact.

The withdrawal of the Turkish garrison left the immense and long-disputed fortress of Kars temporarily "unwanted," a gift for any adventurer who might care to take possession of it. And strange to tell the adventurer was not long in coming forward, to take the proffered gift; for in this restless country of never-ending

small wars, there were not a few Knights Errant who eked out a precarious living by making any cause their own of an opportunity offered.

Tartars and Kurds came into Kars and, having overrun the province, set up what they were pleased to call "The Republic of the South-West Caucasus, and chose as their President a man named Ahmed Robinson.

This man was nothing more than an adventurer. He was about 40 years of age and rather a fine figure, always well turned-out in contrast to his scallywag followers, and always suave and self-possessed no matter how embarrassing the situation. He had lived in Kars prior to the Russian Revolution but had thought it wise to remain in a remote village of the province, for the duration of the Turkish occupation. His father was an Englishman and his mother was of Tartar origin.

To this unknown Republic, in its far famed fortress, we came in April 1919, ostensibly as an escort to a Military Mission and as such we entered the town, made certain dispositions for our own protection, and the mission proceeded with its works.

To be able to follow the story from this onwards I must ask my readers to study the Sketch Map of Kars for the dispositions within the town, and the general map of Transcaucasia for the location of detachments in the Province.

At the north-west corner of the town, overhanging the river, rises the ancient Citadel (Itch Kaleh of the Turks) which in earlier times was a strong military post, but which is now of no importance because it is commanded from heights around it. The fortress of Kars consists of a line of forts dispersed over a total circuit of about 10 miles round the town. The most important works are those on the Kara Dag heights to the north of the town, and those on the heights above the left bank of the Kars River.

As I have said the forts had been left intact. Their armament ranged from 12 inch guns and howitzers to 2 inch quick-firers, all of which were in perfect condition with immense stocks of shells available. To give my readers some idea of the amount of war material that was lying waste in Kars, I cannot do better than relate an incident in this connection.

The reports submitted by the Military Mission caused General Headquarters Tiflis, to wake up and take a lively interest in Kars. The idea of utilizing this source to supply Deniken

immediately presented itself, and so my Battalion was ordered to collect all available guns and ammunition and rail them down to Tiflis. It was pointed out that, were every available man, limber and cart devoted to this purpose, we could not hope to make any impression on the Ammunition Dumps, etc., for several months. This made the case more intriguing and so General Headquarters sent down a gunnery expert to report on the situation. The morning after his arrival this Officer was asked by the Colonel how long his work would keep him in Kars. He replied to the effect that he hoped to complete his report in about three days. The Colonel was sceptical, but merely deputed a Staff Officer to show the gunnery expert round the forts and magazines. Late that afternoon two tired Officers dismounted at the Residency and were met by the Colonel who once again put his question to the gunner. He replied that were he to do his job with any degree of completeness, he would be in Kars three months.

Rifles and ammunition were to be had for just what effort was necessary to collect them. There were hundreds lying about the empty barracks, and magazines well stocked with small arms ammunition were open to anyone that cared to visit them. So that the local inhabitants went armed to the teeth.

Scattered over these vast defences and in the Ordnance Stores, and Magazines, Ahmed Robinson had small detachments of Tartars varying from ten to thirty men. Besides these he had about 200 men employed as gendarmerie. At the time of our arrival it was unlikely that the Republic could have mustered more than 500 effective fighting troops in Kars. However, given time, they could most probably have gathered together a fighting force of several thousand men. The Tartars intensely resented our interference in their affairs and their attitude towards us was distinctly unfriendly.

Several incidents occurred which tested our patience severely. However, we had all been warned to take no action which might precipitate the crisis before we were fully prepared for it, and so one's righteous wrath had just to be stifled and one's indignation soothed with the thought that we would shortly be in a position to administer the "dressing down" so badly needed by our unwilling hosts.

Following us in rapid succession there arrived in Kars, a British Infantry Battalion only 350 strong, an Indian Pioneer Battalion about 600 rifles, a troop of British Yeomanry, a Section of a Light Armoured Motor Battery which had worked with us in

Mesopotamia in 1918, and one Section Royal Field Artillery, 18 pors., also one Section Signals (Wireless). Troops were billeted in the town as shown in the Map.

During this concentration which took six days, *i.e.* up to 11th April, we had, under the plea of arranging for our local protection, placed guards wherever there was a Tartar guard, and care had been taken to ensure that our guards was at least twenty-five per cent stronger than the Tartar guards. Petty cases of friction between our Troops and the Tartars continued to occur, and our conciliatory attitude completely mislead the Tartars whose truculence grew correspondingly. They were led to believe that we might be frightened into leaving Kars. Meanwhile the Military Mission calmly proceeded with its work. The nett result of its deliberations was that we were to take over Kars.

April 12th 1919, was the day fixed for this. The secret had been well kept and it was not till the day came that the plan of operations was made known to the Officers who were to carry it out.

The details were as follows :—

The Tartar Government had just taken over rather a fine building for use as a Parliament House. There was to be a meeting of Parliament in the New Parliament House at 4 P. M. on 12th April. Our Colonel, as Military Governor of Kars, was to attend. He was allowed to take with him one interpreter and one orderly. He himself was allowed to carry arms, but his Interpreter and orderly were to be unarmed. He was to be there ostensibly to listen to their grievances, in reality to arrest the leaders of the Government.

4.45 P.M. was zero hour. At zero hour a Company of my Battalion was to surround the New Parliament House. Simultaneously two platoons were to raid the old Parliament House, arrest the guard and seize all documents. Smaller parties were to take the railway station, post and telegraph Offices. Our guards in the citadel and fortifications were to capture all Tartar guards. Martial law was then to be proclaimed.

The reader will appreciate the vital necessity there was for ensuring the exact synchronization of each detail in our scheme.

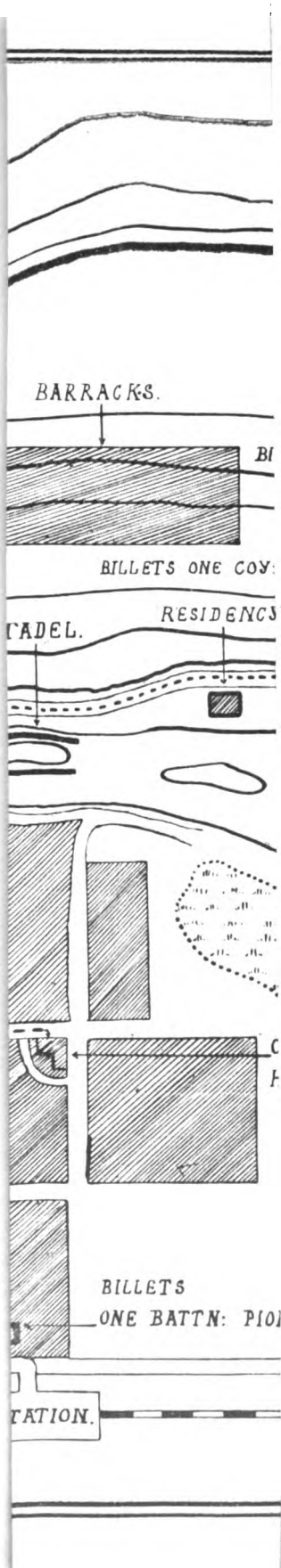
The smallest error in calculating the time required to reach any objective would have resulted in the premature disclosure of our plans; would have irrevocably compromised the Colonel, and must have led eventually to heavy casualties. Officers concerned made careful calculations as to time and space.

The old Parliament House fell to my lot. The Colonel personally gave me my orders at the Residency about 10 A.M. on the morning of 12th, and then one of his Staff Officers led me to the citadel which, you will see from the Map, overlooks the town. We had a signalling station and a guard there, and the Staff Officer laid the signalling telescope on the old Parliament House and then advised me to take a good look at it and estimate how long it would take to it from our billets. Looking at the Map of Kars, the dotted line commences on the road below and billets. In the citadel we also had a wireless station. My next job was to explain to our Guard Commander that at 4-45 P.M. that evening the Sergeant in charge of the wireless station would hang out a blue signalling flag on the wheel of his limber. This would be the signal for them to capture the Tartar guard.

In my very brief survey from the citadel I had been able to make a very rough sketch of the old Parliament House and its immediate environs, and I now hurried back to our billets to prepare the Officers and Non-Commissioned Officers of my party for our task, while the picture was fresh in my mind. Having made my plan and issued orders to my two platoons, there was nothing further to do but wait with what patience one could muster for 4 P.M., because movement of any sort before that hour was forbidden.

At 4 P.M. all available men of the Battalion fell in on the northern side of our billets where a concentration of troops was almost hidden from view. The parties for the Railway station, Post and Telegraph Offices moved off immediately. The Company for the New Parliament House had about one mile and a quarter to go, and moved off at 4-20 P.M. My party had actually about 300 yards more road to cover, but part of our way lay through the main street where we might have attracted attention before the others reached their objective. They had to reach their objective and surround it by zero hour. I had only to reach mine by zero hour. I decided to move behind "A" Company which was detailed for the New Parliament House. We therefore moved off at 4-22.

A small Battalion reserve was to be stationed at the western end of the main street where the dotted line bifurcates. Along with this reserve was a Regimental Aid Post and Battalion Headquarters. The Battalion was at this time actually commanded by the Second-in-Command, the Colonel having been appointed Military Governor. Our available strength at the time amounted to three



companies, one company being out on Detachment. However three companies at that time meant about 800 men, the Battalion strength being 1,120.

At 4-37 P.M. my party entered the main street. Our presence appeared to cause no comment. We moved down about 600 yards of the main street at a good walking pace, then left-wheeled into the street in which the old Parliament House was situated. All eyes sought eagerly for the sentry of the guard. He was nowhere to be seen. This might mean two things. Either the guard was forewarned and the sentry under cover, or else, with characteristic irresponsibility, the Tartar sentry had left his post.

The old Parliament House looked north-west on to the market place, and, as far as one could see, the usual desultory business seemed to be proceeding there.

We moved quickly forward and reached the porch of the Parliament House on time 4-45 P.M. Our luck was in: A light gun found an excellent position on the corner of the street. Certain Sections had been detailed to surround the building, others to enter by doors on the right and left of the main entrance. I, with two strong Sections, entered by the main entrance. Before us was a long corridor leading right through the building. On our right was a stair-case. A Non-Commissioned Officer and three men took on the rooms on the corridor while the rest raced up the stairs. We arrived on the next floor, a bit blown, to find ourselves in another corridor similar to the one below. The light was bad, but looking down this corridor, we saw silhouetted against the light from an open window in the far end, the figure of the sentry we had been looking for. He was muffled up and fast asleep. A couple of men closed with him and successfully stifled his efforts to warn his comrades inside the room. A room off the corridor immediately opposite the stair-case was found to contain the telephone, so we put a sentry over it. We then approached the room outside which the Tartar sentry had been seated. It was locked. There was no time to waste.

Three of us somewhat bulkier than the rest took a run at the door from the opposite side of the corridor. The door burst open and we followed pell mell into the room. For a moment we were faced by a rather formidable band of ruffians, armed to the teeth and fairly bristling with indignation at our intrusion. However their open indignation was shortlived, for within a second followed the rest of our party with fixed bayonets. They were speedily disarmed. A room was selected in which we were

to collect prisoners. This batch was shepherded there and we continued our search. Within half an hour our work was done. We had 29 prisoners without firing a shot. Looking down into the street below I discovered that a large crowd was gathering in the market-place. The situation might have become serious but for a cartload of casualties which appeared from one of the other areas. This had a decidedly salutary effect and very shortly an armoured car, arriving on the scene, caused the crowd to melt away altogether. By half-past-five it was getting dark, and our prisoners promised to be a bit of problem once darkness fell. Among them were two Turkish Officers, who clamoured loudly for release.

Luckily the Colonel and his staff arrived at about a quarter to six. They first posted a proclamation in the market-place announcing that the town was now under Martial Law, and that anyone seen in the street after 7 P.M. would be shot on sight. They then came upstairs and gave us the good news that our operations had been completely successful everywhere and Kars was now in our hands. They next examined our prisoners and selected Turkish undesireables for deportation to Constantinople. The remainder were released.

Fortune had favoured our plans at the new Parliament House also. At 4-45 P.M. the Colonel had risen in the midst of Ahmed Robinson's followers and informed the astonished assembly that Martial Law would be in force in Kars from that moment and that they were under arrest. The Assembly rose as one man, pistols were drawn, and for a few seconds things looked ugly. At that moment the sound of a rifle shot rang out from the street below. The Assembly Hall was a long narrow room lined with windows looking out on to the streets on either side. The shot brought the startled House to these windows to look down on a line of glittering bayonets which surrounded them. Obviously the game was up, and all that remained for the members of the Tartar Parliament was submission to their arrest with the best grace possible. A special train was waiting to convey to Tiflis prisoners who were to be deported, and all undesirables were duly entrained and despatched from Kars under a strong escort that night. The night of 12/13th April passed without further incident.

The Great War had exacted a heavy toll from the rural population of the Provinces of Kars. To the farmer, the country with its severe winter and brief summer, was a hard taskmaster at the best of times. The Turks had gathered every pound of

grain in the country and had formed an immense dump within a few miles of Sarikamish. Meanwhile within the province the people starved. There was dearth of seed to sow, and moreover the so-called Government could not even hold out to the sower the hope that he would reap the harvest of his labours.

Hordes of Banditti roamed the country and no man's life or property was worth a moment's purchase. Under the circumstances reconstruction was impossible. The only direction in which a start could be made was to purge the Government of its undesirable Turkish element which had fostered this state of affairs as being in harmony with Turkish policy. Hence our deportation scheme. Having overthrown the Tartar Republic the Military Mission set to work to form a provisional Government in its place. The Presidentship was offered to Ahmed Robinson who accepted it with alacrity.

There followed in the province of Kars a very brief period of reconstruction. Detachments were sent to Sarikamish and Kagisman and Alexandropol, all important frontier towns; American grain was sent down *via* Tiflis, and for three weeks the province enjoyed peace and security such as it will never know again within the present generation.

Our ultimate objective in coming to Kars was to make order out of chaos that existed, and then hand over to the Armenians a province in which there was some hope of making a new beginning. The first part of our work was now accomplished, and the Armenian Army, some 5,000 strong, which was then located near Erivan, was invited to march into Kars and take possession. The transport difficulties were overwhelming but nevertheless their vanguard reached Kars about two weeks later, and the work of handing over Kars was immediately entered upon.

To the Adjutant fell the nerve-racking work of superintending the changing of guards scattered over the fortifications. You will agree as to the nature of the task when you picture an officer, all too acutely aware of the power of high explosives, having to show round a party of blissfully ignorant cigarette-smoking Armenian Officers, whose route lay through dumps of loose black-powder, dynamite, guncotton and sundry other unpleasant commodities. No amount of warning was any good, there was always some one who contrived to forget.

Two companies of my Battalion went to supply the Detachments mentioned above. The remaining two companies supplied duties within the town of Kars. We were billeted in what used to be a

School for Russian Artillery Officers and were very comfortable indeed. On arrival in Kars we had found in a church, a dump of over a million rounds of our own Small Arms Ammunition, and this enabled us to put in a useful amount of light automatic-training whenever men were available. The residence of the Military Governor was a place of some interest. It was most conveniently situated, and consisted of one well-built and luxuriously furnished house which was the actual Residency, and two smaller blocks which accommodated a bodyguard. The Residency, like the fortress, passed from power to power, escaping destruction only because of its utility.

On Sunday, April 27th, the Commander-in-Chief of the Army of the Black Sea paid us a visit. He expressed great satisfaction at all that had been done, and considered that the object of our presence in Kars had been most thoroughly achieved. He ordered the withdrawal of our detachments preliminary to our leaving Kars. Detachments having duly arrived, two companies left for Tiflis on 6th May. Headquarters and two companies remained to greet the main body of the Armenian Army which arrived some ten days later, a sorry spectacle from the point of view of British standards, but full of hope nevertheless. During this period of waiting the British Troops in Kars had been rapidly thinned down.

The night before our second party left Kars the Armenian Army Commander gave a banquet in our honour. Wine flowed freely, countless speeches were made and could good feeling have achieved it, the Anglo-Armenian solidarity was assured for evermore.

We wished them luck and left them to the reconstruction of their state. What their fortunes were it is not part of my story to relate; but, in the cold light of day, the rose-tinted glasses of the night before were missing and, as our train rolled out from the station of Kars, our hearts held no hope that the Armenian people would make good. The odds against them were too heavy.

COST ACCOUNTING III.—BUDGET & MISCELLANEOUS.

By Lieutenant-Colonel R Prince, O.B.E.

I find that I have hitherto neglected one important point of the present system of cost accounting in the Army which is not understood by Army Officers. This is the assured accuracy of the store accounts. If Commanding Officers will see that the agreement of the accounts is carried out every month, they may rest assured that the store balances shown in their store ledgers or their Quartermaster's ledgers are absolutely accurate, and that no further audit is necessary. As a matter of fact, no further audit is at present given to these accounts and the local auditor merely satisfies himself that the accounts agreement has been made, and that it has not been cooked. The Commanding Officer can, with about fifteen minutes work monthly, see the same result, and then, provided his issues have been made according to regulations, he need not worry about the fact that his books are only audited once a quarter.

For convenience I have given the details of this agreement in an Appendix. It will be seen that it contains nothing new, or strange, or difficult, it is merely the application to Army Accounts of ordinary commercial book-keeping. The day book of Receipt vouchers represents the ordinary Inward Invoice Book. The day book of Issue vouchers represents the Outward Bill Book, and the two parts of the Summary stand for the Stock In and Stock Out books. The agreement with the costed ledger, and that ledger's agreement with the tally cards, or Quartermaster's ledger or other unpriced record maintained by the store-keeper, is the ordinary accounts check which is applied in all well accounted firms. This means that all store officers in the Army now possess a store account of which they are at any time able to establish the correctness. This is a most valuable asset and it would be foolish indeed if the Army ever allowed account changes to destroy this present result. I dwell on this subject at some length as I have been surprised to learn that this basic fact of the accounts is not known generally to all Army Officers. It is important that it should be known.

After this retrogression to the more elementary part of cost accounting, we will now return to the subject which we decided in the last article was the next for consideration, namely budgetting. There are many points to consider before it can be decided whether a particular head of account can best be budgetted for centrally or locally.

In the case of certain items of obligatory expenditure it is obvious that we will get far more accurate results, and with far less labour, if we budget centrally, *e.g.* pay of all fighting units.

Again where the administrative machinery is perforce centralised, the budgetting and the watching of the actuals must also be centralised. A case in point is central purchase of foodstuffs. In this instance an attempt has been made to watch expenditure in Commands, but it has proved a failure. Any such experiments in defiance of account principles are almost certainly foredoomed to fail.

Central budgetting seems to be permanently necessary whenever the Army is dealing direct with the trade for any supplies except those which are not capable of being economically stored or transported, *e.g.*, fresh meat and vegetables or bricks, lime, etc. The reason for this is that, with centralisation, the purchases are larger, and consequently the rates are lower, and also there is no chance of the Army putting up prices by bidding against itself. This means that local or district budgetting is restricted to the internal activities of the District, that is local purchases, the cost of handling and distributing stores within the district, and the cost of establishments for which no scale is laid down. I exclude M. E. S. from my remarks as their budget is in many ways different from the ordinary Army budget.

Our District budget then is not formidable, it will consist of the purchase of fresh meat and vegetables, and a few other petty supplies, and the running of the butcheries and bakeries and store depôts, the cost of transit within the area, and such miscellaneous items as hot weather establishments, convalescent depôts, etc. The Cantonment budgets are not strictly nor entirely Army budgets, and I do not propose to consider them.

Whoever is responsible for a budget must also be responsible for the administration, and consequently the expenditure; and his accounts should be submitted separately and clearly, and his outturn rates should be the result of his own administration. If this is conceded, it follows that our present procedure is incorrect or incomplete in two particulars.

(a) there is at present no separate head showing the cost of transport within the area.

(b) the cost of bread should be a local rate and not an all-India rate, and should be dependent upon the cost of running the local bakery.

At the moment I can think of no other inconsistencies in the present procedure and consequently I think that we have found a fairly accurate line of demarcation between central and local budgetting.

Now how should budgetting be done? The first necessity is a large note book in which should be entered the name of the establishment to be budgetted for, and its activities and the authority thus—

Convalescent	For British troops from	A. D. letter No. 2395,
Depôt.	Pindi, Jhelum and	dated 16th August
	Sialkot Brigades only.	1919.

then below this entry the actual cost for several years past should be entered, and the explanation of their variation should be given, *e.g.*—

1921, 11,500 over previous year.	Explanation.—A great many patients from Wazirforce and depôt was crowded for 5 months from May to October, Numbers.....May, June, etc.
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Furthermore any orders affecting this budget note book should be entered up as soon as they are received, and their probable effect should be worked out at once. The latest rates should, of course, also be entered, and the effect worked out in the same way. If this procedure is properly and wisely carried out, it will be found that the note book is always up to date and the budget can be practically copied straight out of it.

This is the method of budgetting in its broad lines, and the details are best left to be worked out to fit each case. A budget note book is an invaluable administrative Bible, and is particularly useful to the man who is just taking up a new appointment. This fact shows how the budgetting, the administration, and the actual accounts should all hang together and form part of one mutually helpful whole. Here then we come to the end of the uses of cost accounting. It is obvious that if, for instance, the Staff are to budget for and administer a Convalescent Depôt, they must know how much it costs. They can't be expected to check

each separate indent on Arsenal or Supply Dépôt, nor can they wade through pages of ledgers, but they can look to its progressive cost month by month and ask for reasons if they see that any particular head of account is rising unduly.

I have now completed my endeavours to shew the Army the method and the object of Cost Accounting. If what I have written has cleared the air in any direction, if it has formed a basis from which future discussion and further examination of the subject can spring, I will have fulfilled my object. It is a difficult subject, and much adjustment and re-adjustment will occur before it can finally be fitted to bear its intended burden.

In conclusion I may add that it is a curious reflection that a system of accounting of which the rudiments were invented by the Army in Woolwich Arsenal in about 1885 should at long last have come home to roost. I forbear all quotation of the ancient proverb.

I will stop here on the subject of accounts but so many officers have questioned me recently on the subject of store frauds that it would seem that an extract from a lecture I recently gave to the I. A. S. C. Officers' School at Changla Gali may be of interest to all, as a slight addition to this article.

"Perhaps I may as well mention the more common method of store fraud now obtaining in the Army in India. The most usual method is undoubtedly to work up a surplus by means of a series of petty short issues and then to receive short from the contractor and go halves with him. By this method the store-keeper is never caught short of stores for which he is responsible, and it is generally rather difficult to find the surplus unless the Officer-in-Charge is particular about the exact place of storage. This fraud can be minimised by frequent stock taking and by carefully laying down where each article is to be stored and never allowing it to be left anywhere else. Furthermore empty store rooms and all unused space should be constantly inspected. This fraud is financially most successful in the case of flour, atta, and other foodstuffs. Constant stock-taking minimises it, and unexplained and unreported surpluses should always mean that a store-keeper is at least under suspicion. No good store-keeper who really does his job can possibly have any considerable surplus of which he is unaware. An unreported surplus of any magnitude constitutes an indefensible dereliction of duty and should invariably be dealt with accordingly. By harassing the thief in this manner, you will probably force his hand and he will try to get the stores out of the Dépôt, particularly if he knows

that you are most likely to take stock just before the Contractor is due to give delivery. Once he tries to move the store, the store-keeper has to bring more people into the swindle, the profits diminish and the risk of discovery is very greatly increased. When you think a swindle is being run, it is always a good plan to change the personnel because this brings more people into it.

Another very simple form of swindling is to take a percentage from a contractor. Central Purchase has very greatly lessened this in the I. A. S. C. The only way to deal with this matter is to scrutinize prices carefully. It is I think now generally accepted that nerrick rates are not worth the paper they are written on. The increase in transportation facilities has of course wrecked the isolation of each military station as it existed twenty years ago, and a great deal can be done by watching local prices and by always being prepared to buy fairly far afield if this is in any way advantageous.

Many methods of working up a surplus are adopted, short issues is the most usual, and in foodstuffs I have often found a whole consignment weighed, although it consisted of stiff bags and the weight recorded and then the stiff bags are in many cases issued and accepted at 80 lbs. apiece. By this method very considerable surpluses accrue, and I hold the opinion that most foodstuffs, such as flour and atta, should be accounted for only as so many stiff bags, and not by weight, and that slack bags should be rebagged immediately.

We may also class under this heading of swindles some of the stereotyped reasons for a shortage, *e.g.* loss in transit, or decomposition of steam coal into coal dust by wind and rain. This last should represent a very small per cent practically nil unless overstocking has occurred and the coal has been lying out for a few years.

The other method of working up a surplus, that of entering a cancelled voucher number or of posting non-existent voucher numbers, is brought to light at once by one of the golden rules, *i.e.* "Watch your receipt voucher." This is certain to bring any such practice to light very quickly.

After this lengthy extract I may here close this series by repeating the four golden rules for store accounting which I then gave at Changla Gali—

Take casual stock.

Watch receipt vouchers.

Investigate objections personally.

See that your accounts are agreed monthly.

APPENDIX.

AGREEMENT.

No e.—This agreement cannot be fully understood unless the three forms are referred to while this is being read. In a unit the accountant will always be able to give an officer a blank form and other officers can refer to the specimen form in Volume I of the Cost Account Instructions.

Receipt Vouchers.—The total value of the vouchers, as shown in the Day Book (Form I) must agree with the total value of receipts, as shown in the Summary (Form III), and these totals again must agree with the total receipts shown in the Ledger (Form II).

Issue Vouchers.—Agreement as above, but read “Issue” whenever the word “Receipt” occurs.

Then the closing balance of the Ledger (Form II) must be agreed item by item with the Quartermaster's ledger.

2. The above agreement should be carried out step by step as laid down above, each month, for every store account in the army. If it is done without “cooking,” the store account must be correct; and, conversely, if any objection is raised against the accounts which necessitates any alteration of balances after agreement, the agreement must have been “cooked.” It is the duty of the Unit Accountant to make this agreement. If the C. O. sees that it is done, and makes it quite clear that he will report any “cooking” to the Controller, he may be reasonably certain that his store accounts are correct.

Note.—I have given no reasons why these accounts must be correct if this agreement is carried out, but they are stated fairly fully in my Chaugli Gali lecture, which is I believe being reproduced in the I. A. S. C. Gazette.

MILITARY NOTES.

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FRANCE.

Developments in Artillery and Mechanical Traction,
(being a review of a recent French work by Lieut.-Colonel
Rimailho, entitled "Artillerie de Compagne.")
(Published by Gauthier-Villars, Paris.)

Under the title "Artillerie de Compagne," Lieut.-Colonel Rimailho has recently published a work which not only merits a careful study by its intrinsic value, but has two special claims to notice. Firstly Colonel Rimailho, the author, was one of the four men whose names are associated with the design and perfecting of the 75 mm. gun, a weapon which, 20 years after it was first taken into service, was easily the best field gun used by any of the belligerent powers. He also designed the heavy howitzer in use in the French Army at the beginning of the war, a weapon which embodied some extremely advanced ideas, such as semi-automatic loading and breech action, but which was soon abandoned in the Great War owing to its lack of range. (The designer admits the defect, but says that the Government made the fatal error of stipulating that some obsolete 155 mm. gun tubes should be utilised.) Rimailho's views would thus in themselves carry considerable weight, and the position which he holds lends additional interest to them. Having disagreed with the authorities over numerous points, he accepted the post of artillery designer to the St. Chamond firm which ranks as the second largest French armament firm as regards gun construction (Schneider being the most important). Several of the equipments now in service in the French artillery are of St. Chamond design and construction, and though the book is obviously intended to further St. Chamond sales by drawing attention to the excellence of their wares, it is equally obvious that a firm of their standing would not spend time and money on producing and perfecting designs unlikely to find favour in official eyes. The chief interest of the book, therefore, lies in the valuable pointer it affords to possible developments in artillery equipments, and, especially in mechanical traction, in the French Army.

The book is divided into four main sections :

- (i) French artillery from 1870 till the invention of the 75 mm.
- (ii) Invention of the 75 mm. and evolution of French artillery up to 1914.
- (iii) Guns in service in the Great War.
- (iv) Guns of the future.

The first three sections form an interesting historical sketch, and incidentally show the character of the author in a pleasant light, inasmuch that he gives full credit for their work to his collaborators, and even to rival designers.

In the fourth section, which forms the subject of this paper, Colonel Rimaillho sets out his ideas as to how the gunnery desiderata for the various types of weapon may be met, and how the degree of mobility required may be attained. To give a clear picture of the requirements which he proposes to satisfy, he gives, in the first chapter, a sketch of the opening phases of a war of the future. He is, however, no irresponsible "futurist, but a business man with goods to sell, and it is clear that his 'war of the future' is a war which might commence to-morrow. His campaign develops, therefore, in a way not vastly dissimilar to the events of the last war." Here he is at one with the teaching of the French Staff: "We may prepare for the future, but we must be ready to fight with the weapons of to-day."

He then proceeds to examine each category of weapons, to lay down the requirements which each should fulfil, and to show how the gun made—or designed—by St. Chamond "fills the bill."

The equipments are treated in the following order:—

- (1) Infantry gun.
- (2) Close support artillery (d'accompagnement).
- (3) Field artillery (appui direct).
- (4) Motor vehicles for artillery purposes.
- (5) Mountain guns.
- (6) Cavalry guns.
- (7) Anti-aircraft guns.
- (8) Heavy field guns (H.T.).
- (9) Heavy field guns (M.T.).
- (10) Caterpillar mountings.
- (11) Railway guns

Chapter 2.

Infantry gun (drawn by one horse or advisable into man-loads).

The following desiderata are assumed :—

Object of the gun.—To deal with unexpected resistance and to break up counter-attacks in process of development.

Requirements.—Light shell (3 kg. = 6½ lbs.) to ensure adequate supply. Explosive effect to equal 75 mm. shell. Divisible into loads, maximum weight 30—45 kg. (66—99 lbs.). Howitzer type of weapon, maximum range about 1,500 m. (1,640 yards).

Performance of gun (1923 pattern)—

Calibre 75 mm., muzzle loading. Shell weight 3 kg. (6½ lbs.).

Bursting charge 750 gms. (1 lb. 10 oz.).

Buffer and recuperator (not described).

Maximum range 1,800 m. (1,970 yards).

Elevation 0—70°.

Traverse 40°.

Height of sights from ground 330 m. (13 inches).

Variable charges contained in brass cartridge cases (loaded from breech).

Mounted on a triangular chassis with two spades.

45 mm. anti-tank gun (1923 pattern) horse drawn.

This gun has been designed to provide the infantry with an anti-tank weapon. Full details are not given, but the A. P. projectile is capable of penetrating 3 cm. (1.18 inches) of armour at 300 m. (330 yards). It has a field of fire of 7° and a maximum elevation of 45°. The height of the line of sight above the ground is 20½ inches. From the illustration and letterpress it appears that the gun is intended to travel on its wheels and not to be split up into loads.

Chapter 5.

Motor vehicles for artillery purposes.

For a reason which will shortly be apparent, it will be convenient to turn to Chapter 5 in which the author deals with motorization. He admits that his country-men are somewhat more conservative than the British and Americans in motorizing

the artillery, but points out that the question of petrol or other fuel supply has not yet been satisfactorily solved. Nevertheless he thinks that his country men are wrong in hesitating to abandon the horse for the machine. France is a country of small holdings where motor traction for agricultural purposes has signally failed.* Take away their horses from the cultivators in time of war, and the failure of agriculture will bring about defeat. France is short of men, and tractors require less personnel than do horses; their adoption in the artillery would therefore result in a very valuable addition of man power. All the attempts to move a division by mechanical transport in the last war involved its arrival minus its guns (which being horse-drawn moved more slowly) and so shorn of half its fighting power. The petrol supply problem will yield to a serious attempt to tackle it, and in any case the motorization of the whole artillery would only increase the petrol consumption of the army by 10 per cent. The type of vehicle required is then discussed. Pointing out the obvious failure of all attempts made during the last war to combine tactical and strategic mobility, he discusses recent attempts to solve the problem, *e.g.*, the flexible track of the Kegresse type and the multiple wheel system produced by Renault. The latter system is held advantageous for light loads, but vehicles so constructed are liable to be stopped by trenches or ditches; whilst the former involves a heavy petrol consumption and the rubber treads are very vulnerable to shell splinters.

His firm has therefore developed a type of vehicle combining wheels for use on roads and tracks for cross country movement. In this vehicle the chassis is jacked up on the wheels or lowered on the tracks, the operation being in most cases effected in 10 minutes by the crew of the gun, tank, or tractor, unaided.

The first vehicle they attempted to construct was the Chenillette St. Chamond 1921. This only weighs 3 tons, and carries $\frac{1}{4}$ -inch armour ($\frac{3}{8}$ -inch vital portions). It is armed with a machine gun, is manned by two men and has a speed of 12 m.p.h. on wheels and 3 m.p.h. on tracks.

From this the firm evolved an infantry tractor, mounted on a chassis practically identical with that of the Chenillette with the object of carrying an "équipe" or squad of 6 men and towing a

* See note at end of review.

trailer containing ammunition. This light tractor weighs 3 tons like the Chenillette and is provided with a 15 h.p. engine.

The firm next produced a somewhat larger chassis with a 30—40 h.p. engine which, with some modifications as regards gearing, served as the basis of the following designs :—

Light artillery tractor.

Motor mounting for close support gun.

Light gun tank (armed with 45 mm. gun).

Light machine gun tank (armed with 2 machine guns).

The weights as will be seen from the table given in Appendix vary from 4·8 tons for the tractor unladen to 8·6 tons for the gun tank. The performance also varies, but generally speaking the tank or tractor attains a road speed of 10—12 m.p.h. on wheels and a cross country pace of 3 m.p.h. on tracks.

Next in order come three heavier models—

(i) Army Corps type artillery tractor (60 h.p. motor).

(ii) Army type tractor for heavy equipment (120 h.p.).

(iii) Lorry tractor for employment on the Lines of Communication (80 h.p. motor).

The chassis of the army corps type tractor serves with slight modifications as a platform for the 75 mm. cavalry gun. The weights of all three vary between 7 and 10 tons.

In the lorry tractor some modifications have been introduced with a view to obtaining greater simplicity; in particular it has not been considered necessary to make the rear wheels swing up as far clear of the ground as is done with the other models. Apparently it is fitted with a 5-speed gear box as there is a gear lower than 1st gear which is termed “vitesse de dépannage.”

Details of performance are given in the Appendix table.

The St. Chamond firm has also produced a small tractor for use with mountain artillery, but, as this is only provided with tracks, it may be omitted from the present review.

In short, the firm appear to be standardising five different types of chassis :—

- (1) 15-h p. chassis (Chenillette).
- (2) 30—40-h.p. chassis (field artillery tractor).
- (3) 60-h.p. chassis (corps artillery tractor).
- (4) 120-h.p. chassis (army artillery tractor).
- (5) 80-h.p. tractor lorry.

Reference will now be made to the chapters dealing with the various categories of artillery in order to show how Colonel Rimailho has combined the above-mentioned chassis with an up-to-date weapon to meet modern requirements.

In Chapter 3 these requirements as far as they concern close-support weapons are examined. The objective will always be a skilfully concealed centre of resistance which has escaped bombardment. The gun to deal with it should be a small quick-firing howitzer ranging up to about 2,500 metres (2,750 yards), with a highly efficient shell weighing about 6 kg. (13½ lb.). Horse traction is out of the question for such a weapon owing to vulnerability of the teams, and the only point at issue is should the gun be self-propelled or hauled by a tractor. Colonel Rimailho thinks it should be self-propelled for the reason that the battery commander will be reluctant to part with his tractors when his situation is uncertain, and thus the advantage claimed for the separate tractor, that it can be taken away under cover, is always lost in a critical moment.

He then illustrates the St. Chamond solution of the problem, which is a small 75-mm. howitzer mounted on chassis No. 2 above, the crew being protected from bullets and splinters by armour (thickness not stated).

Chapter 4.

Field guns ("matériels d'appui direct").

On the five weapons described in this chapter, two at least are simply adaptations of the existing 75-mm. gun. It is not surprising that endeavours should be directed to improving the 75-mm., since it exists in enormous numbers and is mostly in the hands of impecunious Powers very unlikely to permit themselves the luxury of a new field artillery equipment. One suspects the firm of having arranged potential customers in order of their financial embarrassments, for the first pattern shown is obviously for the "poor relations."

Denoted "75-mm. St. Chamond 1897—1923," it utilises most of the existing elements of the 75-mm., but introduces an open trail and a variable recoil buffer; 40 degrees elevation can thus be obtained and a range of 11,000 metres (12,000 yards) is possible with the streamlined shell.

The St. Chamond 1922 model 75-mm. is very similar, but has an improved breech of the vertical sliding block type. The existing pattern was never intended to swing in an open trail, and

its machining, as the author pointed out, diminished the possible output appreciably during the war.

Next in order comes the 75-mm. "puissant," comprising an improved gun on a mounting very similar to those already described, and having a maximum range of 13,000 metres (14,200 yards).

Colonel Rimailho then draws attention to the need for plunging fire which beset the French constantly during the war owing to the lack of a small field howitzer. Referring to the difficulties attendant on the attempts to obtain a steep angle of descent by using reduced charges in the 75-mm., he recommends the 105-mm. howitzer designed by St. Chamond.

Its characteristics are:—

Range	...	...	10,000 m. (= 11,000 yards).
Weight of shell	...	...	16 kg. (= 35 lb.).
Maximum elevation	..	..	45 degrees.
Buffer	...	...	Standard St. Chamond with variable recoil.
Carriage	...	...	Rear trunnions; weight of gun balanced by spring.

In the preceding pattern the defect of a small vertical field of fire has been remedied, but that of a restricted traverse still remains. In the 75-mm. G.C.T. ("grand champs de tir") this fault has been remedied and the gun rendered capable of high-angle fire from 45 degrees to 65 degrees. Colonel Rimailho is not an advocate of the split trail for field guns, he considers that it has too many joints and that a rigid mounting is preferable, and he makes the surprising statement that the split trail was officially rejected for field guns by the French authorities in 1918. Again, the 75-mm. gun is utilised with the sliding block breech mechanism as variable recoil buffer and rear trunnions, balance being maintained by a spring. The total weight has been kept down to 1,325 kgs. (2,920 lb.).

It is suggested that this gun could be used for anti-aircraft fire, and that all field guns will in the future be required to co-operate in the struggle against hostile aircraft, so great will be the influence of aircraft upon land operations.

The 75-mm. G.C.T. is the last of the modified forms of the existing 77-mm. to be described. Colonel Rimailho next makes some interesting observations on the field artillery of the future,

Hitherto (he says) the tendency has been to regard the field howitzer as the compliment of the field gun; but the whole experience of the last war indicated that the reverse should be the case, the howitzer being the main weapon and the field gun simply used to deal with targets which are beyond the range of the howitzer. If horse traction is still retained, the designer is limited to weights of $2\frac{1}{2}$ tons behind the team and $1\frac{1}{2}$ tons in action, and with that limitation he has to obtain a howitzer ranging up to 12 km. (13,100 yards) and a gun with a range of 14 km. (15,300 yards). If the howitzer is adopted as the principal weapon, the calibre of 105-mm. will have to be reduced, because the 16 kg. (35 lb.) shell, however valuable in effect, would mean a reduction of the ammunition available to one-third of the corresponding figure for a 6 kg. (13 lb.) shell. The latter figure is too small to produce a good destructive effect, and the designer will probably have to strike a mean with a calibre of 90 mm. and a 12 kg. ($26\frac{1}{2}$ lb.) shell. Equally he will have to abandon the calibre of 75 mm. in order to obtain his maximum range of 14 km. (15,300 yards) without utilising an excessive initial velocity, and he will probably be led to adopt a calibre of about 80 mm., with a shell weighing 8 kg. ($17\frac{1}{2}$ lb.)*. Thus the calibres of howitzer and gun tend to approach each other, and a useful economy can be secured if the same mounting can be utilised for both.

The factor obstructing the adoption of a single weapon to perform the functions of both gun and howitzer is the erratic behaviour of modern propellants when the density of loading descends below a certain value, and in variations in the "pression de forcement" or pressure required to make the shell take the rifling. If this is kept as low as possible its variations will have less influence upon the shooting with small charges, and the author states that using two types of shell for long and short ranges, his firm has obtained results from a 75.- mm which prove the production of a single weapon a feasible proposition.

Colonel Rimalho concludes the chapter by a description of the 75 mm. gun on self-propelled mounting. The gun is the 75 mm. "puissant" or super 75 mm. attaining a range of 13 km. (14,200 yards).

* Skoda have constructed a gun of calibre 83.5 m, with a range of $13\frac{1}{2}$ km. (14,800 yards).

Chapter 6.

Mountain Artillery is dealt with.

Colonel Rimailho considers that here it is not desirable to have a gun and howitzer of the same calibre, since the 155 mm. howitzer will not normally be available in mountain warfare and consequently the howitzer ought to be sufficiently powerful to knock out any works likely to be met with. The expression "gun" is really a misnomer in this case since the weapon the author considers desirable is a gun-howitzer capable of high angle fire with a shell of 5 or 6 kg. and a maximum range of 8 km. (8,760 yards). For foreign service the gun ought to be divisible into loads not exceeding 110 kgs. (242 lbs.) and be not wider overall than 1 m. 200 (3 ft. 11½ in.). Its calibre is 75 mm., and it ranges to 8,700 m. (9,500 yards) with the normal 75 mm. shell and to 9,000 m. (9,850 yards) with a special shell. The vertical field of fire is from — 10° to +45°, and 10° of traverse is provided by a small pivoted top carriage. The gun weighs between 700 and 800 kgs. (1,540 and 1,760 lbs.) and is transported in 7 loads:—

Gun.

Breech and breech ring.

Buffer and sights.

Cradle and top carriage.

Axle and half trail.

Half trail, spade and wheel.

Shield.

The trunnions are set to the rear and a laminated spring balances the preponderance. The recoil is variable.

The 105 mm. mountain howitzer has a practically identical carriage, and fires a shell of 12 kg (26½ lbs.) to a range of 8 km. (8,750 yards). Maximum elevation 65°. Carried in 8 loads, total weight 780 kgs. (1,720 lbs.).

A small semi-automatic mountain gun, calibre 70 mm. is also described.

Chapter 7.

Artillery of the Light (Cavalry) Division.

Colonel Rimailho's conclusions as regards this class of artillery may be summed up very briefly.

(1) As in the case of mountain artillery it is not desirable to have a single calibre gun and howitzer, since the Light Division will normally not be able to call on the 155 mm. howitzers of other formations to overcome a resistance which proves too great for its own guns. The reduction in calibre of the howitzer which would be necessitated by a combined design is therefore not desirable in this case.

(2) If the guns are to be horse-drawn the weight behind the teams must be kept down to under $1\frac{1}{2}$ tons, and preferably to $1\frac{1}{4}$ tons. This involves the sacrifice of ballistic qualities to a certain extent.

Hence, if mechanical traction is adopted—and this is the only means of obtaining a more powerful weapon for the cavalry—the requirements of cavalry would be met by:—

A gun practically identical with the 75 mm. on self-propelled mounting already described in Chapter 3.

A howitzer, calibre 105 mm., utilising the same mounting.

The gun would range to 13,000 m. (14,200 yards) and the howitzer to 10,000 m. (nearly 11,000 yards).

If horse traction is adopted, St. Chamond have constructed a light 75 mm. mounting weight under 1,500 kg. (3,300 lbs.) ranging to 9,000 m. (9,850 yards). It is proposed to utilise the mountain 105 mm. howitzer, on a carriage with large wheels and a wide track, giving a range of 8 km. (8,750 yards).

Chapter 8

Anti-Aircraft Artillery.

It is considered that in the initial stages of a campaign the hostile air activity will probably be so great that anti-aircraft artillery will be required to work with or even in advance of the heels of columns. Anti-aircraft equipments must therefore possess a high degree of mobility which necessitates mechanical traction. When deciding on the calibre of the equipment several conflicting considerations must be reconciled. To obtain maximum effect a high muzzle velocity and a large calibre are desirable but the latter is limited by the size of cartridge which can be dealt with if hand loading is adopted. This factor limits the designer to a gun of about 80 mm. calibre with a muzzle velocity of 700—800 ms. (2,330—2,680 f.s.), since the complete round must not exceed 15 kg. (33 lbs.). If mechanical loading is adopted there is again a limiting factor, namely, the size of round which

can be introduced between the gun and the ground. This consideration had led most designers to a calibre of 100 mm. or 105 mm., though in the U.S.A. a 120 mm. gun has been constructed.

Colonel Rimailho favours high explosive for anti-aircraft work, the fragmentation having been previously prepared. He considers that shrapnel has proved relatively a failure, and that mechanical fuzes will certainly be adopted to counteract irregular burning at high altitudes.

Discussing the organisation of the battery, he is in favour of a trailer mounting rather than a self-propelled mounting, in order to avoid crowding on one vehicle and to leave the gun members free to work. The whole of the data for anti-aircraft fire will be determined at the instrument post and transmitted to the gun. The former will give much more accurate results if the personnel working it are not hampered by noise and the movements of the gun detachment. All the essential data ought to be worked out and transmitted from this control post, the sole duty of the gun detachment being to load the gun and make the indicators on it follow the transmitter needles.

The first gun described is the 1924 pattern 80 mm. anti-aircraft gun designed by St. Chamond. Its principal characteristics are—

M.V., 680 M.S. (2,230 f.s.).

Semi-automatic breech (hand loading).

Automatic fuze setter.

Elevation, 0—80°; traverse, 360°.

Weight in action, 2,800 kg. (6,155 lb.).

The gun is also intended to fire at small angles of elevation, and is provided with a central pivot rising automatically in a sleeve as the gun is elevated. The height of the trunnions and ground clearance is thus varied automatically as required.

It is not clear whether the second gun described is in existence yet, although it is called Model 1924.

This gun, the 100 mm. "puissant," is intended principally for the defence of important localities, and is designed for electrical operation from a control post suitably situated. Loading would also be done electrically. Neither its M. V. nor the weight of its shell are given, but the former would presumably be in the neighbourhood of 900 m.s. (2,950 f.s.).

An additional advantage of having instrument posts on separate vehicles is that spare posts could be sent up to the field batteries armed with guns capable of high angle fire, such as the 75 mm. G.C.T. The field gun of the future may have its fighting apparatus so arranged that it can make effective anti-aircraft practice when the required data are supplied to it by such a post. Colonel Rimalho's view that it will be necessary to employ field artillery against aircraft has already been noted. He also shows an improvisation of the 75 mm. gun as an anti-aircraft weapon with all-round traverse.

In the last part of the chapter the author justifies the system of control from a B.C. post at a distance and the method of laying the gun by electric motors controlled from this post, or rather from the vehicle or post containing the instruments for observation. This system is further described in Appendix 5 of the book.

Chapter 9.

Medium Artillery (H.T.).

No very new ideas are contained in this chapter. The author considers that the experience of all nations has been conclusively in favour of a calibre in the neighbourhood of 155 mm. for a medium howitzer. He therefore adopts it, and lays down that its range must not be less than that of the field gun, *i.e.*, 10—12 km. (11,000—13,000 yards), in order that a 155 mm. battery may not be neutralised by a hostile field battery without being able to reply. A medium howitzer ranging to 10—12 km. would weigh about $3\frac{1}{2}$ tons, and Colonel Rimalho thinks that to haul such a weight in a single load would involve too heavy a sacrifice of mobility. He admits that guns of a corresponding weight were able successfully to follow the advances made in the last war; but these movements were small and slow, and it by no means follows that a 4-ton horse-drawn equipment would be sufficiently mobile for a rapidly-moving campaign. He therefore proposes to divide the howitzer into two loads, the gun and the carriage, each weighing about 2 tons.

The experience of the late war has again shown that 105 mm. is a very suitable calibre for a gun to carry out harassing fire at long range. This calibre provides the necessary ballistic qualities and at the same time keeps the weight of the gun down to $3\frac{1}{2}$ tons, and that of the shell to a limit which allows of large quantities being available in the field.

At the same time, a shell of 105 mm. is not sufficiently powerful to deal successfully with enemy heavy batteries possessing some degree of cover; a heavier gun is required, but naturally it cannot have quite as long a range for the same weight. St. Chamond have therefore produced 3 guns—

155 mm. howitzer—

Weight of shell, 45 kg.	...	... 99 lb.
Range, 12 km.	...	... 13,100 yards.

105 mm. gun—

Weight of shell, 17 kg.	...	... 37½ lb.
Range, 18 km.	...	... 19,700 yards.

120 mm. gun—

Weight of shell, 22 kg.	...	... 48½ lb.
Range, 16.5 km.	...	... 18,000 yards.

An interesting point about these equipments is that the mountings are all interchangeable, the gun alone being different. This accounts for slight variations in weight, but the heaviest equipment does not exceed 3½ tons.

Chapter 10.

Heavy Artillery (M.T.).

Horse-drawn equipments must necessarily be limited in range, and if the principle be accepted that heavy guns and howitzers should equal or just out-range all hostile field artillery, a maximum range of 15 km. (16,400 yards) is imposed, a figure which involves recourse to mechanical traction.

Even in mobile warfare, works are frequently encountered which are beyond the capacity of the 155-mm. howitzer to destroy. A calibre of 220 mm. (8 inches or just over) was adopted by all the belligerents, and Colonel Rimailho thinks it the best for general purposes, as the howitzer will have to perform a wide range of duties. He thus decides on the characteristics of two howitzers:

155-mm. howitzer, self-propelled or tractor drawn—

Weight of shell, 45 kg.	= 99 lb.	
Maximum range of 15 km.	...	16,400 yards.
Minimum range of 5 km.	...	5,480 yards.

220-mm. howitzer, tractor drawn—

Weight of shell, 120 kg.	= 264 lb.	
Maximum range, 15 km.	...	16,400 yards.

As regards long-range guns, he considers that the range obtained by the horsed equipments will be considered insufficient in the future, and to meet the demand he proposes—

A 105-mm. gun ranging to 20 km. .. 21,900 yards.

A 155-mm. gun ranging to 25 km. ... 27,400 yards.

The 155-mm. howitzer and the 105-mm. gun should belong to the Army Corps, and the other weapons to the Army.

The system proposed for all four types is to move them in two separate loads, the gun and the platform. An all-round traverse is arranged for by incorporating a double recoil system—

(1) Between the gun and the top carriage.

(2) Between the top carriage and the platform.

The effort transmitted to the mounting on firing is thus reduced below the minimum force required to move it in any direction. The carriage for the 155-mm. howitzer is identical with that for the 105-mm. gun, and the 155-mm. gun is also mounted on the same carriage as the 220-mm. howitzer.

The gun may be either tractor hauled in two loads, or self-propelled in one or two loads. In the case of the 155-mm. gun an ingenious solution is adopted. The mounting is on a wheel and track trailer, the caterpillar tracks alone being self-propelled, and the gun itself is hauled by a lorry tractor of ordinary type, as it never need leave the roads. To come into action the gun is placed on the mounting, which has previously been lowered on to its tracks, and divested of its wheels. The engine of the mounting is then started up, and the gun and mounting leave the road and proceed under the power of the mounting to the battery position.

Chapter 11.

Caterpillar Artillery.

Several caterpillar equipments of the petrol electric type already exist and were utilised during the war, notably, the 220-mm. and the 280-mm. howitzer and the 194-mm. long range gun. Their main defect was that they were devoid of strategical mobility, though possessing a high degree of tactical mobility.

Colonel Rimailho thinks that the super-heavy howitzers which will be used on these mountings will only be called for on comparatively rare occasions when it is required to destroy fortification of a permanent character, and that they should invariably be moved long distances by rail, and the mountings should be adapted for easy loading and detraining.

To meet these requirements he elects for a calibre of 305 mm. (12 inches) as a mean between 280 mm., as representing a minimum calibre for the destruction of permanent works, and the 400 mm. and 420 mm. calibres employed during the war.

This heavy howitzer could be supplemented by a 194-mm. gun, more powerful than the existing model, to be used for long range bombardments. St. Chamond are, in fact, at work on the designs of two caterpillar mounting guns.

1. A 305-mm. howitzer—

Weight of shell {	480 kg. (A.P.) ...	...	1,056 lb.
	400 kg. ...	...	880 lb.

Weight of bursting charge {	30 kg. (A.P.) ...	...	66 lb.
	60 kg. ...	...	132 lb.

Range with 400 kg. shell, 15 km. = 16,400 yards.

Maximum elevation, 70°.

2. A 194 mm. gun (7·56-inch calibre)—

Weight of shell, 125 kg.	275 lb.
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Weight of bursting charge, 20 kg....	...	44 lb.
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Range, 30 km. = 32,800 yards.

M.V., 800 M.S. = 2,630 F.S.

Maximum elevation, 40°.

Chapter 12.

Super-Heavy Guns on Railway Mounting.

Guns of this type are dependent for their development on the progress of naval design. They may be divided into—

Super heavy guns.

Heavy guns.

The first category require either a curved branch line or siding, or else a very elaborate platform, either of which take several days to construct and exclude the gun from mobile operations. The second category, however, can very advantageously be utilised in open warfare; they can come into action in a very short time on any siding, and they have an all-round, or at any rate a very wide field of fire.

St. Chamond are now working on the mounting for a 240-mm. gun produced by the War Ministry. It will have a 360° field of fire.

APPENDIX—I.

Specifications of Tractors.

(1) INFANTRY TRACTOR, 15 H.P.

Weight ...	...	...	...	3 tons.
Trailer (4 wheels) {	tare	...	...	1·2 tons.
	loads	...	...	1·6 „

Performance (speeds and maximum slopes climbed).

TRACTOR ONLY.					WITH TRAILER.			
Gear.	On wheels.		On tracks.		On wheels.		On tracks.	
	Speed.	Slope.	Speed.	Slope.	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.		m.p.h.		m.p.h.	
Bottom ...	2½	1 in 7	½	1 in 3½	2½	1 in 18	½	1 in 5½
Top (4th)	15½	1 in 200	5½	1 in 180	3½*	1 in 200	3	1 in 50

(2) LIGHT ARTILLERY TRACTOR, 40 H.P.

Weight ...	...	...	...	4.8 tons.
Weight of trailer ...	{ tare	...	...	2 "
	{ load	...	...	3½ "
Load carried by tractor...	...	...	...	1.5 "
Maximum speed	15½ m.p.h.

(3) LIGHT TANK, ARMED WITH 45 MM. GUN OR 2 M.G.

Weight	8.6 tons.
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(Can cross trench 4 ft. 11 in. wide.)

Armour {	front	1 in.
	sides8 "
	roof4 "

Performance at 1,300 r.p.m.

Gear.				ON WHEELS.		ON TRACKS.	
				Speed.	Slope.	Speed.	Slope.
				m.p.h.		m.p.h.	
Bottom ...	...	...	...	2	1 in 6½	½	1 in 2½
Top (4th)	...	...	...	8½	1 in 55	3	1 in 55

At 2,000 r.p.m. speeds are 13 m.p.h. (wheels) and 5 m.p.h. (tracks).

(4) CLOSE SUPPORT GUN (75 MM. GUN-HOWITZER).

Weight	7 tons.
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* 3rd gear.

(Can tow a trailer, weight 1·8 tons.)

Gear.	ON WHEELS.		ON TRACKS.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	2	1 in 7	4	1 in 2½
Top (4th)	10	1 in 83	3½	1 in 66

At 2,000 r.p.m. speeds become 15 and 6 m.p.h. on wheels and tracks respectively.

(5) CORPS ARTILLERY TRACTOR, 60 H.P.

Weight	{ tare	...	...	...	7 tons.
	{ load	...	...	..	3 „
Trailer	{ tare	...	...	...	3½ „
	{ load	...	...	...	7 „

Performance with laden tractor, 1,000 r.p.m.

On wheels.

Gear.	TRAILER LOADED TO 4½ TON.		TRAILER LOADED TO 10 TONS.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	2	1 in 7	2	1 in 10½
Top (4th)	8½	1 in 100	8½	1 in 1,000

On tracks.

Gear.	TRAILER LOADED TO 4½ TONS.		TRAILER LOADED TO 10 TONS.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom	6	1 in 2½	6	1 in 3½
Top (4th)	3	1 in 33	3	1 in 66

(6) 75 MM. FIELD GUN ON SELF-PROPELLED MOUNTING.

Weight of gun and mounting...	...	10 tons.
Trailer and 100 rounds	...	2½ „
Rounds carried on gun carriage	...	50

Performance at 1,000 r.p.m.

Gear.	On wheels.		On tracks.	
	Speed.	Slope.	Speed.	Slope.
	m.p.h.		m.p.h.	
Bottom ...	2	1 in 6	6	1 in 2½
Top (4th)	8½	1 in 5	3	1 in 33

(7) HEAVY ARMY TYPE TRACTOR, 150 H.P.

Weight ...	tare	...	...	11 tons.
	load	...	...	4 "
Trailer ...	tare	...	...	5 "
	load	...	...	15 "

Performance at 1,000 r.p.m.

(4 tons on tractor.)

Gear.	WITHOUT TRAILER.		TRAILER, LOAD 8 TONS.		TRAILER, LOAD 15 TONS.	
	On wheels.		On wheels.		On wheels.	
	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.
Bottom ...	2	1 in 4	2	1 in 7	2	1 in 10
Top (4th)	9½	1 in 33	9½	1 in 83	9½	1 in 500

(8) 80-H.P. LORRY TRACTOR.

Weight, tare	...	...	11 tons.
Load ...	on wheels	...	2½ "
	on tracks	...	5 "

Performance at 1,200 r.p.m.

Gear.	TRACTOR ONLY, LADEN.				HAULING 8 TON TRAILER.				HAULING 15 TON TRAILER.			
	On wheels.		On tracks.		On wheels.		On tracks.		On wheels.		On tracks.	
	Speed. m.p.h.	Slope.	Speed m.p.h.	Slope.	Speed. m.p.h.	Slope	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.	Speed. m.p.h.	Slope.
Emergency	...	1 3/4	1 in	4	1 in	1 3/4	1 in	4	1 in	1 3/4	1 in	4
1st	...	2 1/2	1 in	1	1 in	2 1/2	1 in	1	2 1/2	1 in	1	1 in
4th	...	12	1 in	5	1 in	12	1 in	5	12	1 in	5	1 in
		45		50		500						

APPENDIX II.

Note on the Agricultural Tractor in France.

The following note may be of interest in connection with the endeavours which are being made officially in France to further the production and utilisation of small agricultural tractors. A French artillery officer, who left the artillery shortly after the war to take up a position with a large French firm employed in the manufacture and sale of agricultural tractors, stated to the writer that he had come to the conclusion, after three years' experience in the distributing branch, that at present the small agricultural tractor was a failure in France. He gave as his reason the difficulty experienced by both farmer and manufacturer in keeping the machines in running order. The acreage to be tilled was sufficient to make "la motoculture" profitable, but the average farmer could not or would not pay the wages of a skilled mechanic who would probably be idle when the tractor was not in use. In consequence, the large majority of machines were handled by the untutored farm labourer who invariably put them out of action sooner or later by the neglect of one or the other of the ordinary running precautions. In France distances between villages are

much greater than in England, and few of the smaller villages possess a garage. These breakdowns therefore usually meant that an indignant demand for assistance was addressed to the makers, who, if they complied with all the requests, were obliged to send skilled mechanics all over the country at a considerable loss to themselves. A refusal on the other hand meant that the farmer reverted to the use of horses and was irretrievably lost as a customer.

CORRESPONDENCE.

DEAR SIR,—With reference to the article on F. S. R. and the principles of war in the U. S. I. Journal, July 1925.

“Ordnance Mule’s” difficulties appear to me to have arisen chiefly owing to his assumption, apparently suggested to him by F. S. R., that “a principle of war is a course of action without which war can conceivably be carried on, but cannot conceivably be won.”

I think the following definition of a principle is more in line with the spirit of our F. S. R. and the teachings of Military History.

A principle (of anything) is a course of action which cannot, as a rule, be departed from without serious consequences.

Let us consider the three principles which Ordnance Mule objects to being classified as such, in the light of this definition.

(1) Surprise or the *stratagem* of surprise.

Certainly, a contestant may disdain to use surprise, and yet win victory through brute force of numbers. But not without “serious consequences,” which in this case will be the suffering of greater casualties, possible consequent lack of moral among the troops and certainly in the “Vaterland.” I speak from experience of Germany during Verdun and after their 1918 Spring offensive.

In the future surprise will be harder to achieve but proportionately its result will be greater.

Mobility.—“One cannot imagine two statues fighting.” Nor can one imagine that F. S. R. merely refers to the actual power of movement ! I suspect Ordnance Mule of pulling my near-hind !

Does not mobility convey the possession of all those means, such as troops trained to march, hard sound horses, sufficient and suitable transport ; which enable an army to attack the enemy at the right time and place, and have a good meal afterwards ? Without mobility the principles of offensive action, concentration and co-operation become more difficult in any case and, in the face of a mobile enemy, impossible.

Economy of Force.—Here, frankly, I don’t “get” Ordnance Mule.

Surely "Economy of Force" means using the minimum *effort* which will do the job thoroughly.

This entails taking into consideration another distinct principle, co-operation.

It would be truer economy to use, *e.g.*, 2 battalions, 2 batteries and a squadron to take a certain position rather than 2 battalions alone, if by doing so one saved time and casualties. Neglect of this principle, usually due to political interference, has undoubtedly caused the heedless sacrifice of thousands of lives.

"The principle of the maintenance of the objective really includes the second principle, offensive action."

May I give only one example, to me very interesting, which does not seem to bear this out.

In, I think, 1920, three "White" Russian armies were advancing concentrically on Moscow from the Caucasus, the Crimea and Odessa. Denekin was C.-in.-C. The centre army had reached Orel about 50 miles S. of Moscow and was, as far as communications allowed, in touch with the armies on either flank. The Bolsheviks were retiring, Bronstein, Apfelbaum and Co. (*alias* Trotsky and Zinoviev) were sorting their numerous passports preparatory to flitting.

Meanwhile a peasant leader, Makhno, was certainly being a nuisance behind the Whites, shooting and hanging "Whites," "Pinks" and "Reds" indiscriminately. He was a "Green"!

An order from Denekin's C. of S. Romanovski sent 3 divisions from the centre army of the Whites to deal with Makhno and his peasant bands.

The 'Reds' at Orel counter-attacked the weakened centre and a debacle followed. Offensive action there was against Makhno, but no maintenance of the objective—which was Moscow.

One of the "serious consequences" of this (to himself) was that Romanovski was assassinated in the Russian Embassy the day after he landed in Constantinople.

Yours faithfully,

"Cavalry Horse."

DEAR SIR,—Reference the letter from F. G. on page 122 of the April issue of the U. S. I. of India Journal and your editorial remarks, this question is of so great importance to Cavalry Officers that I venture to offer some suggestions.

Cavalry Training, Vol. II (Provisional), devotes Chapter 7 to the employment of Hotchkiss Guns, and lays down, among other things, as follows :—

- (a) Sect. 58. 1(f).—Its effective range is similar to that of the rifle, but the effect of automatic fire rapidly diminishes at ranges greater than 500 yards.
- (b) Sect. 60(1).—Hotchkiss guns should be looked upon as constituting the main fire power of a cavalry regiment. By their use a heavy volume of fire can be produced.
- (c) Sect. 60(2).—It must not be considered as a substitute for a Machine Gun.
- (d) Sect. 60(7).—Repetition fire should be used in preference to automatic fire, except when moral effect is the principal object.
- (e) Sect. 61(2).—Concealment and rapidity of action will be essential to success. These will usually be best obtained by the Hotchkiss gun troop dropping out under cover of the movements of the main part of their squadron, while the latter moves to a flank to attack.
- (f) Sect. 61(3).—Hotchkiss Guns should remain with their squadrons until the last moment.
- (g) Sect. 60(8).—It should be the object of every Hotchkiss Gunner to engage the enemy at the closest possible range.
- (h) Sect. 60(3).—In contrast to a machine gun team they need not seek for especially good positions.

The impression gained from reading the above quotations is that, when the provisional book was issued, the authorities had no very definite idea themselves as to the rôle of these guns in a mounted attack.

It is quite possible that a good deal of the indefiniteness regarding the Hotchkiss is due to this weapon being called a Gun and that this would be greatly dispelled if it was called, what it rightly is, a Hotchkiss Rifle. I am convinced that as

long as it continues to be called a Hotchkiss Gun, despite para. 60(2) quoted above, many people will attribute to it the qualities of a Machine Gun, and, as long as it is incorrectly named, so long will its handling be misunderstood.

Sect. 60(1) is obviously an error, as the main fire power of a cavalry regiment is its Vickers Troop.

Again if "by their use a heavy volume of fire is to be produced, sect. 60(7) cannot be correct as regards repetition fire."

Similarly 61(2), 61(3), 60(8) and 60(3) seem to be at variance.

If one considers sect. 58(1) and the actual facts of a mounted attack in combination with the instructions laid down in 61(2), it is difficult to visualise a situation where it would be possible for a H. G. Troop to bring effective fire to assist the mounted attack of a Regiment—the time and space problems are too intricate.

To my mind, the action of the Hotchkiss Guns, when acting with a Squadron alone, and when acting with the Regiment, are entirely different.

When acting with a squadron alone, the Hotchkiss Guns are the main fire power of the Squadron and, in a mounted attack, they must be utilised to cover it as best they can.

In the case however of a regiment, the main fire power is the Vickers Gun Troop, which is eminently suitable in every way to cover a mounted attack, whether by overhead, indirect, oblique or direct fire.

In such a case, in actual practice, any attempt to get the Hotchkiss Guns of each Squadron to assist by covering fire will usually lead to confusion while, if all the Hotchkiss Guns of the Regiment were collected together for this purpose, it would be impossible to get them into position in time to deliver any effective fire and, in any case, I contend that this is an incorrect manner of using them.

It is unlikely in the future that a mounted attack will ever be delivered by a larger formation than a regiment, and in such an attack it is suggested that the following would be the normal action:—

- (a) The Vickers Gun Troop will be dropped as a "pivot."
- (b) The regiment will be manœuvred so as to "Form Line" of sabre squadrons, in such a direction as to

be able to attack the enemy without masking the fire of its own Vickers Guns.

- (c) The Hotchkiss Guns will accompany their squadrons, in the first place, but, directly the command "Line will attack" is given, they will reduce their pace until they are about 150 yards in rear of the "Line," remaining mounted and coming under the general control of the senior Hotchkiss Gun Troop Commander of the Regiment.

The rôle of the Hotchkiss Guns being—

- (1) In event of the mounted attack being successful, to come up at once and pursue the defeated enemy by fire,

or,

- (2) To consolidate a captured position;

or,

- (3) In event of failure of the mounted attack to come into action, from a rallying point and cover the withdrawal of the mounted portion of the Regiment.

In general I am unaware if it has been suggested that the ideal fire weapon for a cavalry squadron is not an automatic firing weapon but an automatic loader. If every man was armed with an automatic loading rifle, a far more effective covering fire could be obtained from a dismounted Troop, with every shot an aimed shot, than with the present Hotchkiss whose automatic fire over 500 yards is practically useless.

Yours faithfully,

C. B. DASHWOOD STRETTELL.

DEAR SIR,—I note, in your April issue, that there seems to be a considerable controversy on whether Lewis Guns are, or are not, a platoon weapon for the purposes of N.-W. Frontier fighting. I do not know if you want any more correspondence on the subject. Probably it is by now not only dead, but has left an aching deficit. Still, in case you do—

"Company Commander" appears, generally, to take a thoroughly practical view of the question. I cannot agree that the "principles of war do not come into it" because one principle—"co-operation"—seems to me to be the answer to the

whole question. It is "rules for a different set of circumstances" which do not come into it; and I think "Company Commander" will agree. I suggest—

1. That the Lewis Gun is not a platoon (or for that matter a company corps, or G. H. Q.) weapon, but an automatic fire arm useful in co-operation with other arm—and most useful when it co-operates best.
2. Under F. S. R. I. we are (very rightly) organized and trained for an average war, with an eye to Great War. For war under average conditions the platoon has been found the best place for the Lewis Gun to blossom. So there let it blossom.
3. It is an accepted maxim that the best results are gained from artillery by means of centralized control, but, naturally with the proviso that the central control can work (that communications, etc., are good enough). When it will not work, decentralization takes place and forward batteries or sections are pushed up. And no one challenges the idea. Different conditions, different system.
4. At times on the frontier (by no means always) the Lewis Gun can beyond argument do better work when not with the platoon. As a matter of interest the same thing was found on certain ground at the Home manoeuvres lately, and the commander involved, at once, and without feeling worried, employed his Lewis Guns otherwise than with platoons.
5. Under our organization, the platoon is the home of the Lewis Gun, and quite rightly. But the question of whether it should be with the platoon in any given circumstances depends entirely on whether, under those circumstances, it can co-operate best.
6. Finally, perhaps the tribesman can once more give us a hint. He normally wears his poshtin with the fur inside. But he turns it inside out when it rains.

Yours faithfully,

J. P. VILLERS-STUART, COL. (retired).

DEAR SIR,—As far as India is concerned we are supposed to study this year's Delhi Manoeuvres to find out the latest methods of co-operation of all arms.

Colonel Gillies has pointed out in the last issue of the Journal that the allotment of all the available armoured cars to one side deprived us of an example of how to counteract the effect of armoured vehicles.

Looking at the reports of the most recent example of real war, the campaign in Morocco against the Riffs, it appears that the French have been even more remiss as regards the provision of lessons for students; they do not appear to have used either armoured cars or tanks in a country that, judging from pictures, must provide many opportunities for the use of track if not for wheeled vehicles.

Can you make enquiries and tell us the reason why before the next Staff College Exam?

Yours faithfully,

"A VERY BACKWARD BOY."

According to the latest mail reports received from home the French do not appear to have profited much by the use of tanks in Morocco, where it is understood that they had a number of light Renault tanks. Tanks appear to have been used in support of columns on a wide front and in each advance one or more tanks had to be abandoned. It is reported that in several cases tanks so abandoned were converted into strong points which were built round them in advance of the previously defended zones. From various indications it would seem that, at the time of writing, the failure of tanks in Morocco was due as much to poor tactical handling as to inherent defects in the tanks themselves.

The country over which they fought is described as being like that lying between Kohat and Bannu.

It must be remembered that Tanks of the "Boneshaker" type are not really suitable for open warfare. The French model—the Renault is slightly sprung, but it is not a really good machine. Its range is only about 30 miles, its climbing power is futile in comparison with our standards, and it is reported to breaking down in large numbers at French manœuvres. Its maximum speed is only about 8 miles an hour, and altogether it is a much inferior weapon to our types. The French are suffering not only from financial difficulties, but from inability to produce a suitable design.

It is customary to carry the French tank in lorries for strategical moves, and then decant it for tactical operations. Where suitable communications exist it is possible to rail

or lorry it to the scene of fighting (it can be fixed in any normal truck), but when these are left behind its short radius of action doubtless make it difficult to use to advantage.

The country is probably unsuitable as a whole for the use of armoured cars. So far we have heard nothing of their use, and in any case we think the country is such as to confine them to the roads.

In endeavouring to assess the value of tanks in modern mobile warfare, "A very Backward Boy" should remember that the only nation which has really up-to-date equipment in this respect has not yet been called upon to use it.—EDITOR.

DEAR SIR,

With reference to "Puzzled's" letter—

1. In attempting to solve this problem I would point out here that I see no objection in placing the Squadron under the Advanced Guard Commander for employing it for reconnaissance and for protection.
2. It will act to ascertain the movement of the enemy in close co-operation with the Air Force, as the Brigade Group is sure to have its own flight of Aeroplanes, but it is also possible that they might be engaged by the hostile Air-Craft. The Squadron will not only have to verify and supplement the information obtained by the Air Scouts, but it might also have to do bold and searching reconnaissance.
3. Though the Squadron would be under the orders of the Advanced Guard it is most likely that it will form the Van Guard of the Brigade and will continue to do the duty of reconnoitring till the enemy is at a distance and contact with the enemy is not established; but after contact is once established, I think the Squadron should then be withdrawn as soon as the Infantry of the Advanced Guard had leap-frogged them, and put under the thumb of the Officer Commanding the Brigade Group or in any way he thinks best as Mobile Reserve or escort to Artillery, etc., or the Squadron then could be employed on an 'opportunity' being offered, and much, needless to mention here, will depend on the quick decision, dash and determination of its leader.

4. It could also be used for special missions protective or independent, by employing it for surprise.
5. As for (c) "should the major portion of it be kept in reserve, using only patrols for the purpose of protection and reconnaissance?" I am rather inclined, in this direction, to think that it will not be safe to break up the one Squadron or put any limitations on it, because there is the danger of impairing its mobility, and, if the mobility is lost, as is well known, it detracts from its usefulness.

Yours faithfully,
 UDAJI RAO PUAR,
 LIEUTÉNAINT-COLONEL,
Maharaja of Dhar, C. I.

DEAR SIR,

In the review of Vol. II of the History of the Campaign in Mesopotamia published in the July 1925 number of the Journal there are two references to failure on the part of the Cavalry; (a) at the Battle of Dujaila Redoubt on the 8th March 1916, when it appears that a cavalry brigade of four regiments failed to influence the situation by attacking the flank and rear of the Turks and thus delaying the advance of reinforcements, and (b) a general statement... "failure of the Cavalry to achieve anything of importance.... devoted much time and thought to watering their horse..... leadership seems to have been woefully lacking in dash and energy." Subsequent performances of Cavalry in Mesopotamia confirm the reviewer's theory that it was the leadership and not the Cavalry itself that was at fault. But was bad leadership wholly responsible?

It is a very comfortable way of getting of out the difficulty to say, when speaking of a squadron commander, a regimental commander or even a cavalry brigadier, that on a certain occasion, be it in peace or in war, he failed to exhibit qualities of leadership and was unenterprising, without hearing his side of the case, which is often vindicated by a critical examination of the orders received.

At Dujaila what were the orders given to the cavalry brigadier? Did he carry them out and did he fail to depart from his orders if the situation demanded it? Judging from the fact that, on the fatal day, the 37th Infantry Brigade was prevented

from making an attack at a favourable moment because of orders to wait for General Kemball's Column, it is just possible that the Cavalry Brigade was similarly tied down by explicit and definite orders which precluded an attack on the Turkish flank and rear.

With regard to the time wasted on, and consideration given to, watering the criticism is probably just and well deserved. In Palestine cavalry learnt that horses can go an amazingly long time without water—(I heard it said by a divisional commander that four horses in the cable wagon of his divisional signals did 96 hours without water in the advance from Gaza in 1917) and they further learnt another important thing, that in battle you must be prepared to lose your horses if it is worth while. Just before Lord Allenby's final advance the assembled officers of one cavalry division were told by the divisional commander that he was prepared to lose 65 per cent. of his horses in the first 36 hours in getting to Beisan. They knew what to expect. Was the situation as regards any cavalry action in the early part of the war in Mesopotamia ever summed up beforehand in this fashion? Were commanders of brigades, regiments and squadrons ever reminded that, to carry out their mission, they must be prepared to suffer losses of horses from thirst? Were horses, and if so how many and on what occasions, ever lost from want of water in Mesopotamia, where it is asserted, and apparently correctly asserted, that on many occasions the mounted troops did not go further because they had to come back to the river to water—"re infecta" to borrow a favourite term from Cæsar? The lesson drawn is perhaps not so much that of failure of the mounted arm as failure to give them clear, definite and convincing orders, that would have ensured their weight being felt and the battle gained even at the expense of horseflesh, which must be expended on occasions just as ammunition or stores are expended.

Can you throw any light on the question of orders given to cavalry during the period covered by the second volume of the History of Mesopotamia? It is an important one that crops up on every occasion when co-operation of all arms is being practised in peace. It has become more important than ever with the introduction of tanks, armoured cars and aircraft, the co-operation and co-ordination of whose action must be ensured by the successful commander.

"ENQUIRER."

DEAR SIR,

Reference Colonel Dashwood Strettell's interesting letter in the July number of the Journal of the U. S. I., India.

I would like to make a few remarks on one point he brings out.

"d—Sec: 60(7), Cav. Training, Vol. II, repetition fire should be used in preference to automatic fire—except when moral effect is the principal object" and "with every shot an aimed shot than with the present Hotchkiss whose automatic fire over 500 yards is practically valueless."

I think the whole trouble with the Hotchkiss Rifle is that we are never allowed to fire except by using automatic. In the hands of an expert, or from a tank and in a cool climate, automatic fire may give good results; it does not in India in the hands of the *jawan*.

The only reason I can see for this rigid adherence to automatic fire, is to allow the same Table "L" to be fired by the cavalry weapon and the infantry weapon. One result of which is that the cavalry weapon is brought into disfavour, unfair to it and to the man behind it.

Our Manual tells us to use repetition whenever possible; the effect of automatic is explained as a moral effect only. Yet our men are never allowed to fire in accordance with the doctrine laid down. Even in Army Rifle Association India year book the only Hotchkiss competition says "All firing will be automatic."

In those units where a man has to qualify in all his weapons with a British Officer in the butts, the inaccuracy of the Hotchkiss with automatic fire does not make the Hotchkiss troop popular. A man failing to qualify gets no leave and can hold no appointment. The remedy to my second quotation is in itself:—

Don't use automatic fire. Follow Cavalry Training. Use the Hotchkiss to fire repetition, the pace that suits the gun, the *jawan*, and the climate. We will then have our aimed shots for covering fire, and also the several advantages laid down in Cavalry Training, para. 60(7), Vol. II.

I would also suggest that the moral effect of a stream of aimed bullets will be greater on the enemy than that of spattering bullets on the country side.

Other advantages for repetition not mentioned in Cavalry Training are that it is much more reliable, especially in this

country. Stoppages seldom occur with repetition, they occur very often with automatic, usually when fire is most wanted. Concealment is easier, especially by reason of the little dust or sand raised. With automatic in the dry season these rise in clouds. We have our Manual, we can follow what it lays down, if we are not tied down to use our light automatic weapon in a method that does not suit it or us.

SQUADRON LEADER,
Indian Cavalry.

The point you raise is an interesting one. On service the normal fire of the Hotchkiss is, as your rightly point out, repetition, though no doubt automatic fire will often be necessary. As far as teaching goes, however, it is comparatively easy to fire repetition, and consequently at the Small Arms School, automatic fire only is dealt with, on the grounds that if a man can maintain a gun in action at the rate of 150 rounds a minute, he obviously can do so equally well when using repetition fire.

We understand that when the tables were drawn up the para. referred to in *Cavalry Training*, Vol. II, was not forgotten, but it was considered that more value would be got from the training point of view by having all practices fired using automatic fire. The question of having certain practices fired "repetition" is, we believe, being considered.—EDITOR.

DEAR SIR,—Reference Colonel Gillies letter which appeared in your last issue; the fact that the problem of the employment of tanks and armoured cars, both in attack and in defence, has been under constant discussion and experiment at home ever since the war, has not been forgotten; but, however much a problem may have been discussed, manœuvres, in the absence of actual operations, are bound to bring out and emphasise one or more salient features; and it is to that end that manœuvres in general—and these in particular—were designed.

The principle that tank must meet tank in the first instance, is, I think, generally accepted; but the matter does not end there. There are many aspects of the problem which still require study and solution, and which are still under consideration here and at home.

There is, for instance, the question of what is to happen if the enemy tanks succeed in breaking through our tank screen; or if,

as is bound to happen, odd tanks slip through in the confusion. In this connection the question of a suitable anti-tank gun for the infantry is being canvassed.

If such a gun is necessary for the Infantry, who will normally have suitable artillery support within call, how much more is it essential for the cavalry, who may find themselves without support of any kind. It is, for instance, easy to conceive a situation where cavalry has advanced over country in which guns and tanks have not been able to keep up; and in this connection Colonel Gillies accepts the principle that tanks cannot as yet go everywhere that cavalry can go. I suggest that such a situation would be far from abnormal; and it is some such situation that I visualised in my paper.

What then is the alternative? Is the cavalry to be, at the best, neutralised, or, at the worst, overwhelmed? My view is that, as the scope of tanks and armoured cars operating in support must of necessity be limited by the nature of the ground, cavalry should be provided with a secondary and personal arm, to deal with surprise attack by enemy tanks and cars; and, as far as possible, to ensure freedom of action in all circumstances.

Yours faithfully,

C. A. M. HOWARD,

Major.

From the artillery point of view the crux of the whole matter lies in the opening sentence of the last paragraph of Colonel Gillies letter "I would suggest that it is quite impossible for the smaller bodies of cavalry to be equipped to deal with tanks."

Major Howard is logical in his argument that since infantry need an accompanying anti-tank weapon, therefore cavalry must require one too.

Now the infantry's anti-tank weapon (which still remains to be designed) apart from its ballistic requirements, must first and foremost be inconspicuous in movement or it will never get far enough forward in battle to do its job. But inconspicuousness in a cavalry anti-tank weapon is ousted by mobility. Major Howard's point is that cavalry must be certain of being accompanied by its anti-tank weapon over any ground passable to cavalry.

This rules out the 18 pr. or 13 pr. even if either of them were a suitable anti-tank weapon which it is not—Major Howard deduces that the only solution is a pack weapon.

A pack weapon cannot be accepted as a solution because the entry into action of an anti-tank weapon must be as nearly instantaneous as it is possible to make it. No pack equipment can be devised that is rapid enough.

But need the weapon be carried on pack all the time? Certainly not. It need only be taken off its wheels for the passage of exceptional obstacles. When it is remembered that an effective anti-tank weapon need not be heavier than a 3 pr. and may even be less and that its carriage need provide only for direct fire and requires none of the adjuncts necessary for indirect fire it does not seem unreasonable to ask constructors to design such a weapon, travelling normally on its own wheels, but capable of being dismounted in an emergency and carried short distances on pack.

It will be observed that the French Division Legere quoted by Colonel Gillies, relies for its anti-tank defence on the 37 mm. gun carried by the armoured cars. Not only is the gun itself a most unsatisfactory one (it will not penetrate a brick wall) but its employment either confines the cavalry to roads or leaves them unprotected.

From the artillery point of view, Colonel Gillies' assumption that it is quite impossible for the smaller bodies of cavalry to be equipped to deal with tanks is not justified.

There is, I think, little doubt that the immediate future will see a distinct increase in both the artillery and the mechanical vehicles which will be available to accompany cavalry in the field. The difficulties with which cavalry are faced are now clearly recognised—finance is the chief obstacle to their alleviation.—EDITOR.

DEAR SIR,—During Tactical Exercises without Troops which I have recently attended the question of the *allotment* of mounted troops with an advanced guard has been the subject of much discussion. Many junior officers do not appear to be sufficiently clear regarding the rôle that should be allotted to mounted troops. This is probably due to the changes in the sub-division of advanced guard troops introduced in the new F. S. R., II.

2. Your reply to "Simple's" letter in the July number of this Journal does not, I think, make this question any clearer and may perhaps convey a wrong impression. The wording I refer to is ".....In fact the vanguard will really be the advanced guard mounted troops....."

3. In the following remarks I wish to emphasise the differences in F. S. R., II, 1920 (Provisional) and F. S. R., II, 1924, on this point.

Now F. S. R., II, 1920, tells us that, "an advanced guard is divided into a vanguard and a main guard." The duties and composition of these detachments were generally :—

Vanguard—Reconnaissance .. Composed of the advanced guard mounted troops with or without Infantry, etc.

Mainguard—Fighting ... Composed of troops not allotted to the vanguard.

By which we see, amongst other things, that the action of mounted troops with an advanced guard was controlled by the vanguard commander.

4. Now turning to F. S. R., II, 1924, we read that, "an advanced guard is divided into advanced guard mounted troops, vanguard and mainguard;" and that "the action of the bulk of the advanced guard mounted troops will be controlled by the advanced guard commander."

The duties and composition of these detachments are generally :—

Advanced Guard mounted troops—Composed of mounted troops.

(a) Protective reconnaissance (when there is a protective screen in front), *i.e.*, reconnaissance undertaken for the general protection of the advanced guard, some 4 or 5 miles ahead of the mainguard.

(b) Detached missions (when there is no protective screen in front).

Vanguard—Protection of the mainguard, *i.e.*, local protection. Composed of infantry and a small detachment of advanced guard mounted troops.

Mainguard—Fighting ... Composed of troops of the advanced guard (exclusive of the advanced guard mounted troops) not allotted to the vanguard.

5. From the above, I think it is clear that the three detachments into which an advance guard is now normally divided have three different duties and that the advanced guard mounted

troops cannot also carry out the duty of local protection of the mainguard.

6. It is therefore considered that the statement, that in open country (when mounted patrols should seldom be less than 4 or 5 miles in front of mainguard), the vanguard will really be the advanced guard mounted troops tends to make paragraph 45 of F. S. R., II, 1924, confusing, and may mislead the seeker after tactical knowledge.

Yours faithfully,
N. M. C.

You have got the duties and composition of the various detachments of the advanced guard as laid down in F. S. R., II, 1924, quite clearly and correctly.

Perhaps my reply to "Simple" in the July number was not quite clear; what it intended to convey was that, in open country where a good view can be obtained, the rôle of the vanguard is almost filled by the advanced guard mounted troops out in front, and the vanguard proper will be very small indeed.

F. S. R., II, however, is quite clear about the duties and composition of the various parts of the advanced guard, i.e.

- (i) *Advanced Guard Mounted Troops*.—Protective reconnaissance as ordered by the advanced guard commander. In open country mounted patrols pushed out 4 or 5 miles in front.
- (ii) *Vanguard*.—To act as a protective body to the mainguard and give it information. Composed of infantry and small detachment of advanced guard mounted troops.
- (iii) *Mainguard*.—Comprises the troops of the advanced guard exclusive of the advanced guard mounted troops, allotted to the Van Guard.—EDITOR.

DEAR SIR,

Reference the article on Cost Accounting.—The theory of the thing is excellent, and for all I know may also be excellent in practice as far as higher formations are concerned. But I am puzzled as to its application to commanding officers. Does Form V really show him whether as regards money and stores "the best possible use is being made of them?" Does it

give him "an invaluable and practical guide to his proper future procedure!" With the best will in the world I cannot see it.

Taking the items in Form V. *seriatim* as Colonel Prince does it is seen that nearly all of them are what might be called "automatic" charges as far as the commanding officer is concerned; "Ordnance," "Other Stores" and "Miscellaneous" appear to be the only columns where the Commanding Officer can exercise economy. Now assuming that one unit or set of men is more careless than another in the expenditure of stores, I do not see how the commanding officer is to discover this from his monthly half hour's scrutiny. To give him this knowledge he should simultaneously have before him the corresponding figures for other units. Even if that shows a disparity he cannot be satisfied that he is to blame unless he knows the conditions of the other units.

Differences in climate, length of time under canvas, etc., may account for the difference, and probably generally does.

By the law of average one set of 1,000 men is not likely to differ very greatly from another set of 1,000 men under similar conditions. However, for the sake of argument, let us suppose that the commanding officer does unearth a wastage, due to the fact that his men have allowed their rifles to rust and the inner tubes have had to be renewed. Surely he would already be aware of this? It is part of Colonel Prince's thesis that the Officer Commanding "has an intimate knowledge of his own unit—a personal recollection of the orders he gave during the preceding month."

And are we meant to take seriously the apparent suggestion that Form V will show him "(a) That units are properly trained in peace time in the handling and care of the ordnance stores—and (b) That they habitually carry out this training?"

Granted Form V might give some slight hint or implication as to (a) or (b) but surely the more direct evidence of the commanding officer's own eyes will inform him on this point?

If his eyes have *not* told him this it is probably because they have been exclusively devoted to office work. Checking cost accounts, etc. Getting down to the practical detail of the thing in my own unit I honestly do not see how the closest scrutiny of this form is going to save the Government waste.

But even if some items of waste are spotted here and there I should like to compare the saving thus effected with the

consumption of time, labour and money incurred by the operation of Cost Accounting. This would be a difficult calculation to make, but it would be "very instructive" as Monty says—until this is done, with satisfactory results,

I shall have to remain,

SIR,

A CRUSTED TORY.

As the Editor is not an expert in accounts, the above letter was referred to one who is. His reply is given below.—EDITOR.

"I understand that the Crusted Tory's contention may be stated as follows:—

So far as non-automatic charges are concerned the C. O.'s supervision is sufficient to prevent waste in a unit and the old fashioned method of physically overseeing every thing that goes on in his unit is sufficient for his purposes.

The only reply to this is actual fact. Army Headquarters recently received a statement showing the consumption of Ordnance stores in a large number of different units in three different districts. The variation in consumption by identical units under similar conditions in the same district, was very wide and the only reason for the existence of this wide variation was apparently the personal element. In other words this personal supervision under present circumstances apparently leads to very considerable waste. Now this fact is no reflection on the officer. I maintain that to expect him to do his work without any assistance from his accounts is under modern conditions to expect the impossible. In pre-war days it is probable that very few units had 300 ledger headings and most of them had probably about 180. I have just counted the ledger headings of an infantry unit which happens to be in this station and there are 1299. How can any C. O. be expected to keep track of and be responsible for 1,300 items? And how can you fix responsibility when wastage occurs? Obviously we must be responsible for stores entrusted to us and the only method in my opinion is to reduce them to the common denominator of cash value and then watch that. In the case of Ordnance stores this experiment is now actually under trial. This is a typical case.

The Infantry unit whose cash balances I counted had 1,160 Ordnance items on charge. In the absence of any cash values how is the Crusted Tory going to decide which of the last two

years of his administration of the regiment was the more economical? How is he even going to decide on broad lines whether any wastage did occur? By examining each of these items he might find waste in one article, but that is the human error; how then is he going to prove that on the whole he ran his battalion well and economically? No, I think the most Crusted Tory really requires cash values. In their absence, the labours of Sisyphus would be a mere bagatelle compared with trying to run a modern army, with modern agglomeration of military stores, on economic lines.

One word in respect of his last para. I, in company with two or three others who have studied the question, believe that the abolition of Cost Accounting would lead to an increase not a decrease of the clerical staff of the Army. Its expense is then a chimera. If I am wrong I am sure that I am not far wrong, and the expense if any must be very small."

DEAR SIR,

In the article on chemical warfare which appeared in the July journal it was stated that the American gas "Lewisite" belongs to the group of poisonous smokes, mainly arsenic compounds. Is this correct? I believe "Lewisite" to belong to the group of vesicants.

Your faithfully,

"RESPIRATOR."

Lewisite was never actually used in the war. According to the footnote on page 10 of Prof. Haldane's "Calliueus" Lewisite is one of the poisonous smokes. According to Col. Vedder, however, who devotes half a chapter to it, Lewisite is, technically, chlorvinyl-dichlorarsine—a vesicant with formula $\text{Clch} : \text{Chas Cl}_2$ and properties nearly akin to those of mustard gas. It would appear, therefore, that Lewisite is a vesicant; but, where experts differ, "Respirator" must decide for himself between them.

THE WRITER OF THE ARTICLE.

REVIEWS.

Memories of 48 Years' Service. By General SIR HORACE SMITH DORRIEN, G.C.B., G.C.M.G., D.S.O., F.R.G.S. (John Murray, 25.)

Of the multitude of post-war memoirs there have been many which have left us with a very nasty taste in our mouths. The book under review is not one of these. It is pre-eminently the book of a great—a very great—soldier. But it is more besides; it is also the book of a sportsman, and of a very gallant gentleman. As such it must be of supreme interest to all soldiers. Moreover, since it contains a number of excellent plans illustrative of Sir Horace Smith Dorrien's campaigns, it has a quite considerable professional value.

Sir Horace's career is tolerably well known to most officers of the Army; but it may be well here to mention the various campaigns in which he took part: to wit, the Zulu War, Egypt in 1882, the Nile and Suakin Expeditions of 1884—87, Tirah 1897—98, Omdurman 1898, the South African War 1899—1901, and—last but not least—the Great War. These were great days, and there were giants in the land; it is amazing to follow Sir Horace's progress from battlefield to battlefield. Incidentally, in his spare time, Sir Horace also successively held the appointments of Adjutant-General in India, and G. O. C., Baluchistan District, and Aldershot and Southern Command at home. It will thus be seen that, both of war and of peace, few officers of the Army have had such extensive experience as he. His opinions, therefore, have value for the military student.

Sir Horace must have kept very careful diaries. Indeed this fact is proved by copious extracts therefrom; he gives detailed accounts of engagements, many of which took place 25—40 years ago; frequently noting the exact times at which various events took place. But, and herein great virtue lies, he has throughout carefully refrained from personal criticism; though indeed the intelligent reader will have little difficulty in gleaming his true opinions of sundry of his superiors and of the operations which they conducted. That he was always actuated by a high sense of duty is shown by the fact that, in 1903, he resigned the post of Adjutant-General in India,

then a much more important appointment than it is to-day, because he felt his position impossible and considered that he was "drawing pay under false pretences." Again, his letter to Sir John French in 1915 shows that he preferred to sacrifice himself rather than to risk a failure in the operations. This sense of duty, his regard for the welfare of his troops, and his devotion to his staff, these three qualities stand out throughout his book; these it was which made him so well beloved wherever he was—despite the ebullitions of temper of which we all have heard.

Sir Horace began his war services in the Zulu War of 1879. He gives a vivid account of the disaster of Isandhlwana, which occurred chiefly owing to the failure to send up ammunition to the firing line. Our men, old soldiers all of the 24th South Wale Borderers, died exceeding well, and it is interesting to note that the Zulus themselves regarded Isandhlwana as a defeat. Sir Horace was one of the very few survivors of the fight, and was recommended for the Victoria Cross. He also gives details of the Prince Imperial's death, and was present at the battle of Ulundi. His experiences in this war are chiefly remarkable as showing the great lack of ordinary military precautions and of a definite plan of operations; these omissions were the prime causes of our early disasters.

From South Africa Sir Horace went home and thence to Gibraltar with his regiment, the 95th, which was sent to Egypt in August 1882. Sir Horace was not at Tel-el-Kebir; but he raised some mounted infantry and saw some fighting round Alexandria. In October 1882 the regiment went on to India and marched from Poona to Lucknow; we are told that they "enjoyed every moment of the march up." Whilst in India Sir Horace injured his knee and had eventually to be sent home to be operated on; but this worked well for him on the whole, for on his way back to India in January 1884 he was seized on by Sir Evelyn Wood and appointed to the Egyptian Army. Since owing to his knee he could not take an active command, he was appointed Surveyor-General of the E. A., which appointment seems more or less to have comprised the duties of Q. M. G. In consequence he was not present at the actions of Abu Klea, Kirbekan, or Metemmah; but he recovered sufficiently to be present at Giuniss. Thereafter he held command of a small mixed force and distinguished himself greatly,

After passing through the Staff College in 1887-88 Sir Horace returned to India in 1889, where he successively held the appointments of D. A. A. G. and A. A. G. ; although at that time p. s. c. officers were regarded with decided suspicion in this country. He did a lot of racing ; at one time owning no less than thirty-two horses. Sir Horace raced with discrimination and success ; but a pony's keep was not then sixty rupees a month—we repeat, great days. When the Tirah campaign began he rejoined his regiment and his diary of the expedition is enthralling. A curious story he tells of the Nabha contingent, who had a havildar killed, burnt him, and dried their blankets at the fire ; thus showing, as Sir Horace remarks, that “they knew how to make the best of everything.” This part of the book, as an account of a frontier campaign in days that are gone, will appeal with peculiar force to many in this country.

In 1898 Sir Horace went home on leave—only to be summoned back to Egypt. He there assumed command of the 13th Sudanese and took part in the advance on Khartoum and the battle of Omdurman, of which latter he gives an excellent account well illustrated by a plan. In this campaign he was closely associated with Kitchener for the first time—an association which was to continue through the South African War and afterwards in India. He notes the extent to which Kitchener centralised control in his own hands—a trait no doubt effective in a small campaign but one which afterwards was to lead to considerable trouble in the Great War. After Omdurman Sir Horace was sent up to Fashoda and encountered Marchand. His account of the Fashoda affair is fascinating and reveals it as a model of military diplomacy.

After a short stay at Malta in command of the 95th, Sir Horace went with his battalion to South Africa. There it was not long until he was given command of a brigade, and he took a very prominent part in the battle of Paardeburg. It is easy to see that he was not always satisfied with his superiors—above all, with his Divisional General. Nor was the staff work beyond reproach. As another instance of his strength of character it is interesting to note that, when Kitchener asked him to assault a position in circumstances which, he considered, did not justify the inevitable losses, he flatly refused ; although Kitchener had told him that, should he succeed, he would be “a made man.”

After Paardeburg he took part in the advance on Pretoria and was present at Poplar Grove, Sannah's Post, Thabanchu,

Houtnek and Zand River. We are shown what great success might have been achieved if only the impossible had not been attempted with tired horses, and had the action of the various portions of the force been really co-ordinated and carried out according to plan. The inactivity and over-caution of his Divisional General are prominent in the account. After the capture of Pretoria Sir Horace was put in charge of the L. of C. from Pretoria to Vereeniging. There he evolved a system of protection which had excellent results and which is well worth study. The result of this system was that "no catastrophe occurred and the traffic was never interfered with for more than a few hours." It is unnecessary to follow Sir Horace's fortunes throughout the rest of the Boer War; suffice it to say that he took part in the pursuit of De Wet and was at Komaati Port and Belfast in command of various bodies of troops, fighting a number of successful engagements. The standard of his leadership may be gauged by the fact that he was probably the only leader of prominence who never had to admit a regrettable incident. The salient points which emerge from these operations are: the frequent interference with subordinate commanders by higher authority; the failure to hold important defiles—a failure which permitted the Boers to slip away with monotonous regularity; and, as a redeeming feature, the efficient working of the supply services. Sir Horace was a strong supporter of the rifle for cavalry; indeed, he induced the 5th Lancers to go into action without their lances by threatening to leave them behind if they refused.

In March 1900 Sir Horace was ordered to India as Adjutant-General. This appointment then comprised many of the duties of the now Chief of the General Staff. On his arrival he found Sir A. P. Palmer in "temporary" command. The first and main impression he received was that of the excessive power wielded by the Army Department and their constant interference in matters which were solely for decision by the Commander-in-Chief. He also lays stress on Lord Curzon's unpopularity with the Army and on his dictatorial methods. This impossible situation so wrought upon him that he eventually decided to resign his appointment; only staying on at the express request of Lord Kitchener until some months after the latter's arrival. Later, as we know, Lord Kitchener was successfully to engage and scotch the dragon of the Army Department. Sir Horace, however, considers the Commander-in-Chief in India to be overweighted by

his assumption of the duties of Army Member ; but, as he seems to think that the Master-General of Supply as at present constituted controls all administrative services, he has not perhaps quite understood all the changes in staff organization which have since occurred in India.

In April 1903 Sir Horace took command at Quetta ; and, after a more or less uneventful five years there, was given the Aldershot Command. He apparently did not approve of the institution of the Army Council, with which opinion some of us may not agree. But about Lord Haldane's reforms he is enthusiastic, as indeed are all soldiers who know anything of the inner working of the army for the past 15—20 years. For Lord Haldane at any rate was not one of those politicians who consider all soldiers fools and prefer their own half-baked ideas to those of men who have spent their lives studying their profession. Sir Horace describes some of his own reforms at Aldershot, most of which have become permanent in the Army, and it is easy to see what an interest he took in the troops and their welfare. He went with the King and Queen to India in 1911, and thereafter was appointed to the Southern Command at home, where he remained till the outbreak of the Great War.

Of his doings in that war we are most of us cognisant. The chief points of interest to us are his reasons of standing at Le Cateau and his account of the effect of that battle on the general situation. It is now, we think, generally acknowledged that Sir Horace had little alternative but to fight at Le Cateau ; indeed, both at the time and afterwards, the Commander-in-Chief signified his approval of the course taken by the G.O.C. II Corps, and his action has now been vindicated in the Official History. Sir Horace brings out very strongly the effect of the superior British marksmanship on the Germans ; though he considers that later, at Bethune, the German marksmanship had improved considerably. There are many other interesting points ; such as the dangers of divided command, the effect of the II Corps movement on the German retreat on the Marne, the co-operation with the French on various occasions, and the excellence of the work of his own staff officers. In December 1914 the Second Army was formed and Sir Horace was appointed to command it ; but he soon found that he was not in favour at G.H.Q. Thereupon, as already stated, he proffered his resignation, returning to England in May 1915. After a period in command of a home army he

was sent at the end of 1915 to command in East Africa; but on arrival at the Cape he was taken so ill that he had to be sent home, where he remained unemployed till he went to Gibraltar in 1918. It is impossible but to feel that the loss to the Army of his clear brain, courage, and experience at such a time was nothing short of a national disaster.

In conclusion it may be said that, whether we agree or not with all Sir Horace's opinions and actions, about one salient fact we can have no doubt; he was man throughout his career actuated by the desire to do his best for the Army and for the public weal as he conceived it. He was, and is, an example of that type of soldier who devotes his life's work to his country. The memoirs of such a man are worthy of study by all younger soldiers who would do likewise. One closes the book with the conviction that, of all the great soldiers of our time, Sir Horace Smith Dorrien was among the very greatest.

"Paris or the Future of War." BY CAPTAIN B. H. LIDDELL HART.
 ("TO-DAY AND TO-MORROW" Series: Kegan Paul.)

All of us know that prolific military writer Capt. Liddell Hart and his theories on infantry tactics. There appeared in the May "Empire Review" an article by Capt. Hart entitled "The Napoleonic Falacy." It takes a bold man to teach Napoleon the art of war. Capt. Hart is undismayed. He has now expanded that article into the booklet under review.

Of this booklet the greater part is wholly fantastic. The reason for this is probably twofold. Firstly, a military writer is never among the "best sellers"—even though, which is given to few, that writer be a Henderson, a Callwell, or a Maurice. Hence, in order to ensure a hearing—and a sale, the military journalist who writes for popular consumption is prone to be revolutionary, iconoclastic, to exaggerate; hoping thereby to arrest popular attention. And what better theme can such a writer find than a denunciation of the Great Napoleon—"the Corsican Vampire" Capt. Hart calls him, by the way, a delightfully journalistic touch—coupled with an attack on that much-maligned body the General Staff? Secondly, human nature in general dearly loves to gloat over the discomfiture of the expert at his own particular trade. Here again the theme is excellently chosen.

The book would not merit serious attention were it not for its insidious appeal to the layman unversed in military affairs. Mankind dislikes a violent death. In the late war mankind perished in large numbers. For this mortality Capt. Hart blames Napoleon and his disciples in the Higher Commands; he insinuates that a real genius could have ended the war with a lightning stroke and at comparatively trivial cost. There is a danger that he may be believed. Further, there is the politician—with his traditional love of recipes for the manufacture of omelets without breaking eggs. In this book the politician will find encouragement. With public opinion at his back the politician is all-powerful. But, to quote Capt. Hart in one of his more sober interludes, "Nations cannot stake their existence on a gamble in 'future'." It would be unwise, therefore, to allow Capt. Hart's arguments to pass unchallenged.

Capt. Hart's thesis is this. The Napoleonic tradition as expounded by Clausewitz has resulted in one accepted doctrine of war. This doctrine teaches that the destruction of the enemy forces in the field is the only true military aim. But the late war, conducted in accordance with this doctrine, involved the death of millions of men and the economic exhaustion of victors and vanquished alike. Therefore the doctrine is false. For it Capt. Hart would substitute another; that the subjugation of the enemy will is the true military aim.

Herein, if we may say so, Capt. Hart suffers from a very common confusion of thought. He fails to distinguish between the "national object" and the "military aim." In fact he mistakes the end for the means. Let him but inwardly digest that admirable book "A Study of War"—recently produced by Admiral Custance—and he will realise that in peace and war alike the national object, or policy, remains unchanged. That national object is the subjugation of the opposing will. When, however, peaceful methods have failed to achieve this object, a nation then must either have recourse to warlike methods or must renounce its policy. And, before warlike methods can succeed, they must obviously reduce the enemy to such a degree of impotence that he can no longer oppose his will—or policy—to his conquerors. But, in general, we cannot strike at the enemy's morale so long as his armed forces interpose; before we can pierce the heart we must tear aside the shield. It follows, therefore, that the defeat of the enemy forces must be the supreme

military aim. Once that is achieved, achievement of the *national object* automatically follows. Capt. Hart despite all his iconoclasm, is himself constrained to admit this obvious truth. For, in a passage hardly in consonance with the rest of his reasoning, he remarks "... Sometimes a nation, directly its means of resistance—its forces—were overthrown, has hastened to make peace before its territory was actually invaded. Such timely surrender is merely a recognition of the inevitable consequences."

In support of his theory that destruction of the enemy morale is the true military aim. Capt. Hart cites sundry examples. The first explains our author's selection of his title. Paris slew Achilles with an arrow in the heel. The episode, we are told, sheds light on the true objective in war—"a ray of truth too dazzling for the vision of all but a few soldiers." We do not admit to being dazzled—except by Capt. Hart's logic. As the incident appears to us, it is perfect example of the successful application of almost every principle of war as practiced by Napoleon. Paris concentrated superior force at the decisive point—the vulnerable heel in question; it is safe to assume that he surprised Achilles most unpleasantly thereby; and, finally, by destroying Achilles, Paris destroyed the equivalent of several modern army corps. So much for mythology.

We are next asked to consider the climax of the Punic Wars. Scipio withdrew the Roman army from Italy and landed it in Africa. The threat to Carthage resulted in the recall of Hannibal and his defeat at Zama. Scipio, we are told,—a greater than Napoleon—realised that Carthage rather than the Punic Army was his true objective. Scipio, we submit, did nothing of the sort. Scipio wished to bring Hannibal to battle; but at the same time he wished, as has every leader in history, to fight under conditions of his own choosing. He knew that, if the Roman army threatened Carthage, Hannibal must interpose. The Roman soldier, then, would fight on enemy soil, with heightened morale and unoppressed by memories of Cannae. Hence the conception of Zama; that victory in the field ended the struggle.

In the 1814 campaign Napoleon unmasked Paris to move against Schwarzenberg's communications. The Czar Alexander at once elected to occupy Paris. The fall of Paris ended the campaign. Again, we are told, the capital rather than the field army was the true objective. Again we disagree. In 1814 the French field army was already destroyed. Twenty years of war were behind it; the Beresina, Dresden, Leipsic, each

had taken its toll. The army of 1814 was a shattered remnant; the nation was weary unto death; the military genius of Napoleon alone was left. Given the Grande Armée of 1805 and there had been a different tale to tell. Here let it be remarked that, in all Napoleon's campaigns, his genius had never mistaken the true military aim. Napoleon's political ambition it was that wrought his country's undoing. No country can safely follow a policy which, in the ultimate resort, is beyond its military resources to affirm. The national object as set to France by Napoleon—the hegemony of Europe—that required for its achievement forces greater than those of which he could dispose.

Finally, the French occupation of the Ruhr is held up to us as an example of the possibilities of war without bloodshed, of enforcing the national will by economic pressure. Capt. Hart appears to forget that there had been quite a deal of fighting in the years that went before—fighting which had resulted in the defeat of the German armies in the field. This defeat, and this alone, rendered possible the French occupation of the Ruhr.

Having completed his survey of history, Capt. Hart next discusses various methods of attack on enemy morale without preliminary recourse to brutal and messy ordeal by battle. But, in 1914, the aeroplane was in its infancy; the tank was still in the womb of the future; while blockade and interruption of commerce, both, Capt. Hart admits, are slow and often ineffective. As applied to the situation of 1914, therefore, his suggestions are not enlightening; he omits to mention how he would have stayed the march of the German legions while he worked upon the will of the German Government and people. It may be that, at certain stages on the Western Front, the direction of the Higher Command lacked inspiration. Of course no competent leader will voluntarily wage a warfare of attrition. But the theory of warfare without battle, as applied to 1914—18, does not convince. As to the future, however, Capt. Hart is more definite; air power, he maintains, is the solution; a nation possessed of it can strike from the outset at the vital centres of its opponent's national life.

The proposition is as old as air power—and older. The corollary which Capt. Hart propounds thereto—that battle is more than ever obsolete—is an obvious fallacy. Given two warring nations possessed of more or less equal air power, what are the possible alternatives? Each nation, regardless of the other's

air force, may concentrate on causing the maximum damage to industrial centres and the most widespread dislocation of transportation. In fact, the players may elect to exchange queens—which is rarely good chess. Moreover, such a course is likely to result in the complete and lasting interruption of the common industrial life—a contingency which Capt. Hart wisely wishes to avoid; while it is hardly credible that the formation flights of bombing machines will not be opposed by the enemy fighters—in which case we are back again to the old objective, the defeat of the enemy forces in field or air. Is it not much more probable that, in the air as on land and sea, such a war will open with fighting for supremacy? The bombing of enemy aerodromes and aircraft depôts, the engagement and defeat of enemy formations, these and their like will be the primary objectives. Thereafter, once aerial supremacy has been established, bombing of vital centres can proceed without serious interruption. In fact, the advent of aircraft merely transfers the old military activity from earth to heaven. Admittedly, the possibilities of surprise are increased; but surprise, after all, is a principle of war observed by Napoleon and embodied in Field Service Regulations. Of course, if the enemy's air force be altogether negligible, then he is, aerially, impotent from the outset—and Capt. Hart is free to impose his will without let or hindrance; but he is obviously unwise to count on such complacency in his enemies.

Let it not be thought, however, that we wish to minimise the importance of air power, or of a broad outlook generally in matters of defence. Capt. Hart reaches certain conclusions to which no exception can be taken; which, in fact, cannot be too strongly stressed. Air power and sea power alike are based on the civil life of the people; neither can flourish naturally unless it be rooted in sound commercial organisation. After the discovery of the New World, her peculiar geographical position placed England at the centre of the commercial world. The development of civil aviation has once more relegated England to the fringe of the Continental transport system. Therefore, till trans-oceanic flight becomes commercially possible, our air force must be largely an exotic growth. Herein danger lies. Another problem worthy of the closest study is this; in the face of intensive aerial attack the maintenance of vast modern armies in the field will be impossible. A palliative, as Capt. Hart suggests, is the development of tracks. Well, we are probably doing our best; that progress is not faster is mainly a matter of finance,

Has it, for instance, ever struck Capt. Hart to calculate the financial effect of scrapping even the first line transport of our field army? Finally, we must not overlook the vulnerability of our Imperial communications to submarine attack; with a hostile France, the Mediterranean certainly becomes a *mare clausum*—and England possibly starves. It is useless to blind ourselves to these unpleasant facts; the advent of the aeroplane and the submarine has reacted most dangerously on the problem of Imperial defence, and our defensive measures must be adapted accordingly. Much is required before we can regard the future with equanimity. Whether our progress will be adequate or no is a matter partly of policy and partly of finance. The claims of the three Services must be impartially weighed. Is our machinery for the purpose all that is required? The Committee of Imperial Defence does much. But do we not perhaps need a more real fusion of the Services and a Combined Staff? Or even a Ministry of Defence? And when our policy has been evolved, the money must be there to give this policy effect. In all these matters publicity, and popular interest rightly directed, can be of the greatest value. It is a pity, therefore, that Capt. Hart elected to base his book on a misinterpretation of history and on an allocation of blame where it was not rightly due.

The Medical Aspects of Chemical Warfare. BY LT.-COL. ED. V. VEDDER. (Medical Corp, U. S. A., Williams and Wilkins Company, 32/6.)

This book is an admirable complement to "Callinicus," which latter was referred to in the article on chemical warfare in the July issue of this journal. Professor Haldane's "Callinicus" belongs to the "To-day and To-morrow" series under publication by Kegan Paul; and, as such, it is a brief, popular, monograph—eminently sound but necessarily untechnical and condensed. The book now under review is written from an entirely different stand-point. Though much of the matter it contains is of the greatest interest and importance to the layman, it is for the most part a highly technical treatise on the chemical, and pathological aspects of gas warfare, written primarily for the medical profession. It is all the more interesting therefore to find that, in regard to the ethics, efficacy, and probable continuance of chemical warfare, Professor Haldane and Colonel Vedder come independently to the same conclusion. This conclusion

cannot be better summarised than in Colonel Vedder's own words. "We may conclude, therefore, that chemical warfare is not more brutal or inhumane than other forms of warfare, but it is more efficient than other forms of warfare and will therefore continue to be used; and that the very limitation placed by agreement on armament has increased the importance of chemical warfare relatively because the weapon itself, the ability to make chemicals, cannot be abolished." There you have the matter in a nutshell. What nation in extremity will forego the use of gas, knowing that in its use salvation lies? Chemical warfare cannot be regarded as an episode that is past—an evil memory. When war has ceased, then and not till then can we afford to ignore gas and its potentialities.

Unfortunately, there is a type of politician who thinks otherwise. He overflows with the milk of human kindness—of which commodity, he fondly fancies, he enjoys monopoly. He is a doctrinaire, an unpractical visionary out of touch with realities. He believes that human nature can be changed by covenants; that unpleasant realities can be banished by a stroke of the pen. This man is a public danger and his works are evil; he blindfolds the nation's eyes to its dangers. And, for this evil, education is the only cure; wherein lies the great, the peculiar, value of works such as Professor Haldane's and Colonel Vedder's—they help to educate us. They teach us to trust in God, by all means; but none the less to keep our gas-masks handy and our powder dry.

Colonel Vedder's six opening chapters are devoted to the history of chemical warfare, to a discussion of physics and elementary chemistry as applied thereto, to meteorology, and to the characteristics of gas and smoke clouds. Follows an exceedingly interesting chapter on the classification of chemical warfare agents. Thereafter chapters are devoted to the various classes of gas, in their chemical and pathological aspects, under the following headings: pulmonary irritants—in regard to which Colonel Vedder confirms Professor Haldane's view that this class is obsolete in civilised warfare; vesicants; lachrymators; irritant smokes; and miscellaneous gases. Individual and collective protection are then discussed at length; these two chapters would be of the greatest value both to the General and to the Administrative Staff when faced by the danger of enemy gas-attack in war. The two subsequent chapters—on the organisation of the Medical Department and on the disposal of gassed cases—are necessarily less of general than of technical interest. Finally

Lieut. Commander Walton, Medical Service, U. S. N., contributes a chapter on the future of gas in naval warfare, with directions for the de-gassing of ships. The book concludes with an appendix of conversion formulæ for the toxicity data of various nations, and with admirable author and subject indices. It is a book which should have its place in every military library.

Waziristan, 1919-1920. By LT.-COLONEL H. DE WATTEVILLE, B.A., (Oxon). (Published by Constable, London, 1925, at 10/6.)

This volume supplies a want only partly filled by the excellent History of the Operations in Waziristan issued by the General Staff, and will be welcomed by many to whom the latter work is not readily accessible.

It contains, in concise and readable form, a connected summary from the several publications dealing with the country and with its campaigns, including the Razmak operations of 1923, and examines the lessons as they appear in a usefully critical manner.

Of special value to the student of Frontier War are the General Conclusions of Chapter XVII, and particularly two which are apt to be lost in the many minor lessons—firstly, that “in operations of this nature the bludgeon methods applicable to mass fighting must yield to the finer art of individual combat” (though we cannot subscribe to the statement that the earlier, or any engagements of the campaign bore witness to ignorance of the use of the bayonet—for it was never used), and secondly, that the bulk of the lessons of this campaign should be regarded as very far from being conclusive, much less a final word in the matter of warfare on the North-West Frontier of India.

There are occasional slips which in no way mar the value of the work such as—

On page 47.—“Matheson,” obviously a misprint for “Malleson.”

On page 51.—General Climo's command being the 2nd, not the 3rd, brigade.

On page 82.—“To” Sheranni, a short march from Datta Khel, and lying in the open, presumably should be “beyond.”

On page 98.—“The village” of Spinkai Raghza, which is the name given to the plain lying

between Jandola and the Sarkai Ridge. Here the author also lapses from his usual accuracy in description of fighting, as he does once more in dealing with the loss of the Mandanna piquet (page 99).

On page 111.—It is not made clear that the grouping of Lewis Guns referred to was temporary only.

On page 154.—The composition of the striking force is not well shown—the 3rd Guides, Sappers and Miners, and the Pioneers were, of course, Column Troops.

On page 215.—A battalion lost its way, not a piquet.
(Of more importance—

Page 215.—A main value of working at night, or rather in the earlier hours of the morning, is the additional length of day secured in this manner. This aspect is overlooked by the author, as it is in most treatises on the subject.

Page 158.—Is it not equally likely that the decreasing casualty list during the nine days' destruction of Makin was due to exhaustion and despair on the part of the enemy?

But, as noted already, these do not detract in any way from the value of the work. A more serious error, because of the wrong it does to the officer in command and to the troops, is the statement after "Lastly" on page 106, which is entirely without foundation.

It is a matter for regret that more of the many available photographs and plans could not have been used; and the index is a weak feature of a useful, and more than usually valuable, addition to the accumulating literature on the subject of Waziristan.

German White Book concerning the responsibility of the authors of the war. (Published by the Oxford University Press. Price 10/-.)

"Audi alteram partem" is sound doctrine to apply to every matter, however great or however small, that is brought to the bar of human judgment; and the English speaking world owes

a debt of gratitude to the Board of Management of the Carnegie Endowment for International Peace, for having caused to be translated and published the German White Book concerning the responsibility of the authors of the war. The book contains notes exchanged between the German Delegation and the Allied and Associated Powers, and is fully documented. It is published in a cheap and convenient form, so that it is possible for everyone to 'hear the other side' and, having heard, to form his own judgment on the evidence, and on the pleadings.

The contentions of the German Delegation were threefold. In the first place they claimed that the terms of the Armistice left them, indeed, with responsibility to make good the wrongs which they admitted they had done, in particular the invasion of Belgium, and also, though apparently to a lesser extent, the devastation of Northern France, a devastation which they held to be wrong, not as an act of war, but because it had been made possible only by the wrong confessedly done to Belgium. But they strenuously denied that they had ever consented either to accept responsibility for the war as such, or to bear the charges of the Nations arrayed against them in the conflict. Secondly, they endeavoured to throw on Tsarist Russia the blame for the conflagration. And thirdly, they entered a very strong plea for the conclusion of Peace on such a foundation of Justice as would ensure that they themselves were members of the League of Nations and the Peace itself was lasting.

The appeal to the terms of the armistice was a skilful manœuvre, the object of which was to obtain for Germany the position, not of a conquered people, but of an almost equal party to a contract. But it was a manœuvre for which success could not seriously have been hoped, and the answer of the Allied and the Associated Powers is convincing. Neither the famous fourteen points themselves, nor the despatches of the American Government could be construed into a pledge that the reparations Germany would be called upon to pay would be limited to the consequences of those individual acts committed by her in the course of the war, which were most patently in conflict with the recognised Law of Nations. On the contrary, the right to reparations arose out of Germany's aggression, an aggression specified 'By land and sea and air.'

But it is in the controversy on the responsibility for the war that the chief interest of the book centres. The German case is

that, both remotely and immediately, Tsarist Russia was to blame. Remotely, because at the root of the World's troubles was, it is alleged, the ambition of the Russian Militarist party to swallow up the Balkan States and thus obtain effectual possession of the Dardanelles. With this ultimate object, Russia was fostering the Pan-Slavist policy of the smaller Balkan States, and thus bringing herself into constant diplomatic conflict with Austria. Immediately, because it was the Russian mobilization that made war inevitable.

It is the fashion in certain circles to-day to see in every movement towards social reform, the red hand of Bolshevism. With equal unreasonableness, Austria in 1914 saw, in every gesture, that could be construed as inimical to her own selfish ambitions, the guidance of the Foreign Office at St. Petersburg and the shadow of Revolt among her Slav subjects. The focus of this anti-Austrian policy was Serbia; and Austria hoped that, if only she could contrive to reduce Serbia to subjection, she would dam for ever the rising waters of Pan-Slavonic unrest.

The German Delegation, while stressing the danger to Austrian ambitions of the alleged schemes of Russia which lay behind the Serbo-Russian entente, conveniently omitted to remember both that, whatever the guilt of Russia, the guilt of Austria under this head was equally great, and also that, in so far as Germany was virtually the dictator of the foreign policy of Austria, the guilt of Austria was the guilt of Germany.

Still less convincing is the attempt to attribute to Russia the blame for the immediate outbreak of hostilities. It may be agreed that the mobilization of the Russian Army created a critical situation for Germany. But the whole question is, how did that army come to be mobilized? Was Germany or was she not responsible? And out of the mouths of her own delegation Germany stands condemned.

It is beyond question that in the Austro-German alliance Germany was the senior partner. It is equally beyond question that any military adventure against Serbia was bound to involve Russia. Yet this is how the Delegation writes of the situation immediately after the Serajevo tragedy.

"Austria had, it is true, adopted the position that the previous failures of Serbia to redeem her promises forbade her to be satisfied with the results of purely diplomatic action and

constrained her to rely on the effect produced by a military expedition. *Germany approved this attitude and encouraged Austria.*"

What further need is there of witness? This encouragement showed itself during the last fateful days of July 1914, actively in the communications that were made to the Austrian Government, and passively in the obstruction offered to all the schemes and suggestions by England and by the Tsar for a peaceful solution. The despatches exchanged between Berlin and Vienna make it manifest that, if the tragedy at Serajevo were not planned in Austrian interests, nevertheless it created the very situation which the Austrian Government most desired.

And the advantage,—the admittedly unjust advantage—which Austria took of that situation was "encouraged" by Germany. The threat to Serbia compelled Russia to mobilize, and, as to the effect on Germany of Russia's action, we can best quote the Germans themselves. "No person acquainted with the subject could have the slightest doubt as to the meaning of the Russian mobilization to Germany. War on two fronts stared her in the face a war to be carried on against a crushing superiority of numbers. In the West there stood an army prepared in all respects for the immediate commencement of operations.....It was imperative that action should be taken with the greatest possible rapidity on the Western Front.....It is no doubt to be regretted that, in the German declaration of war on France, allegations of attacks by French air-craft were carelessly adopted without any examination of their accuracy, but it in no wise alters the fact that, as soon as the Russian mobilization was known, French mobilization had to be reckoned with, i.e., war on two fronts."

"What is in the mind of man," once said a wise judge, "the devil himself knoweth not." But nations, no less than individuals, must be held to intend the probable consequences of their actions. Germany cannot divest herself of responsibility for the effects of a mobilization for which she herself was responsible.

The third plea of the Delegation was for a treatment based on abstract Justice, and for admission to the League of Nations. In all systems of morality, confession of guilt is a condition precedent to forgiveness, and conviction of her fault comes very slowly to the German consciousness.

But if the admission of Germany to a world organisation had necessarily to be deferred, it is nevertheless a matter for regret that the Note addressed by M. Clemenceau to the Delegation in

response to their disguised appeal was couched in terms so brusque, in language so rough. The address of Count Brockdorff-Rantzau of May 7th, 1919, might have been drafted by Macaulay, so lofty is its idealism, so simple the expression, so sonorous the diction. As translated, it is a model of English prose. In vivid contrast, the Allied reply under the signature of the French President is as the snarling of a blooded tiger exulting over the corpse of his victim, uncouth, horrific. To understand it at all, we must recall the prevailing sentiment of the moment. Six months earlier, and the world had been delirious with the dream of a peace unending and a life in which armament and destructions should be no more. Six months of jealous bickering at the conferences of the Great Four had shown how distant was the Vision Beautiful, and how stern the realities that still faced those, in whose hands was placed, not only the guidance, but the preservation of their peoples. France, convinced that the adoption of a national policy based on high sounding phrases trumpeted from the pulpits of America would result only in early extermination, was determined that her safety could and should be assured only by keeping down the strength of her rival now prostrate. Not only by the matter, but also in the manner of his reply, Clemenceau intended that Germany should realise that the terms of victory were for the victors to dictate, never a matter for debate or argument.

It is never good policy to shame the defeated; and at this distance of time it may be that France herself regrets the language used. But for the student the documents must stand as they were written: and no book that has dealt with the origins of the war is more valuable than this unannotated collection of original documents.

History of the Canadian Forces, 1914-1919, Medical Services. By SIR ANDREW MACPHAIL. (Published by authority of the Minister of National Defence under direction of the General Staff.)

This book is the first of the series of the official history of the Canadian forces in the Great War and deals with the Medical Services.

At the outbreak of the War in 1914 the Canadian Medical Service had a small nucleus of trained personnel. This consisted of 20 officers, 5 nursing sisters and 132 other ranks.

From this nucleus a Military Medical Service was built up which served continually for four years with no failures. It grew finally to a service that had a strength overseas of 1,451 officers, 1,886 nurses and 12,243 other ranks, and, in Canada, of 469 officers, 407 nurses and 2,184 other ranks.

It is important to note that a nucleus had existed as long ago as 1835 and that there was a similarity in the Canadian organization and training to that which existed in England. Indeed a Canadian Medical Officer had attended the system of medical training carried out in the Curragh in 1807 by Lieutenant-Colonel (Now Sir Charles) Burtchael. It is of interest to note that the first Director of the Canadian Medical Services was trained at Netley. In 1911 a Medical Corps was specified in complete detail for a possible overseas contingent. This consisted of 63 officers and 951 other ranks. Therefore when war broke out in 1914 there was a trained nucleus of a Military Medical Service and the possible requirements of an overseas contingent with regard to the Medical Services was known. This explains how the Medical Services were the first to appear at Valcartier when mobilization occurred, and it explains how it was possible for the Service to grow so rapidly and why it never once broke down. It is indeed remarkable that this service was able to grow so quickly and be so effective in so short a time.

It had its difficulties to overcome, and Chapter I commences by referring to the cause of these troubles while Chapters XII to XVI explain in detail these difficulties and how they were finally overcome. Briefly the difficulties were due to a conflict between the civilian and military elements and the inability of the former to realise that the Military Medical Service was part and parcel of the war machine, and therefore inseparable from it. Until this conflict ceased there was considerable fear that the Medical Service would suffer, but the replacement of the civil Director by a trained Military Medical Director saved the situation.

From the account given in Chapters II and III, the mobilization at Valcartier in Canada and the despatch of the first contingent was too rapid. Sufficient time was not given for training, nor for the receipt and distribution of equipment. The equipment was sent over to England in the original packages and had to be sorted out in the Camps on Salisbury plain.

The equipment was not of a sealed pattern, but varied a great deal. Much of it was found to be unsuitable, so it was replaced.

However, in spite of all such difficulties, the contingent which left Canada on the 3rd October, 1914, and reached Plymouth on the 14th October, 1914, actually landed in France in February, 1915.

The winter this contingent spent in England was not a pleasant one. Salisbury plain during a wet winter is not adapted for a camp, and indeed it had never been anticipated that the contingent would have had to camp there.

Chapter III describes the fortunes of the first contingent at the well known Ypres gas attack of 1915, and at Neuvechappelle, Festubert and Givenchy. The Medical Services rendered yeoman service in these battles.

The 2nd Division sailed for England on 18th April 1915. The Medical Services of this Division were trained in England during the summer of 1915. The units had to wait $4\frac{1}{2}$ months to be equipped, and it was not till September that they sailed for France. To those who question the delay, it may be pointed out that, far from criticising the length of time it took to equip these units, praise is due to the quickness with which they mobilized from such a small beginning, and also for the rapidity with which they were equipped, considering the fact that England was engaged in equipping a Medical Service which grew to be one consisting of 770 medical units and 75 Hospital Ships.

Chapter VI discusses the origin, development and equipment of the Field Ambulance. It clearly brings out the important rôle of the motor ambulance car.

The organization of the Field Ambulances have since changed. They now have a Headquarter Company and two companies which give a Main Dressing Station and two Advanced Dressing Stations. The importance of the motor ambulance car, and of the motor ambulance convoys remains, and indeed has been emphasised, by further experience gained since the great war.

Motor vehicles have revolutionised the problem of the evacuation of sick and wounded and enormously benefited the Medical services, and added to the comfort of the sick and wounded.

Chapters VII and VIII deal with the experience of the Medical units on the Somme Salient, Vimy and Passchendale.

We are told that during the war 144,606 Canadian wounded passed through Medical formations out of a strength of 418,032, viz., more than one person was wounded out of three who served.

Of these 11·4 per cent died. Nearly 9 out of 10 recovered from their wounds. This, as stated, is a triumph for surgery.

The importance of anti-tetanic serum in a country where the ground is richly manured is dwelt on, and praise is given to the regimental medical officers and Field Ambulance personnel for the thorough way this serum was administered under difficult conditions. The merits of various antiseptics are discussed, no particular type seems to have gained universal approval.

Experience proved that wounds did best that were thoroughly drained and cleaned. As little interference as possible at the front is advocated, and rapid evacuation to hospitals at the base.

Due to motor ambulance convoys, many cases could be evacuated from the Advanced Dressing Stations straight to Casualty Clearing Stations.

The old Stationery Hospitals disappear with the advent of motor ambulance cars. Even the need for Casualty Clearing Stations might disappear, given good motor ambulance convoys, well equipped barges (on canals) and well equipped ambulance trains. For instance, after the action on Vimy Ridge, by the help of ambulance trains, wounded were taken to England direct, not passing through medical units. They started from Vimy Ridge at 5.30 A.M. and arrived in England at 2 P.M. the same day. The danger of the Casualty Clearing Station becoming too immobilized is noted; in such cases they are apt to get captured unexpectedly.

The use of X-Rays, Thomas' Splints, Surgical teams and Dental units is emphasised.

We have mentioned above the conflict between the Civilian and Soldier. Chapters XII and XVI discuss this subject and the influence it had on the Canadian Military Medical Services. This influence was felt less in France, as there the Medical Services had become part and parcel of the Army machine, and had no time to spare listening to controversial and political matters. Various interesting points emerge from these chapters. For instance a great number of unfit men were sent over to England. This would scarcely occur with trained regimental medical Officers. Criticisms were made that Canadian personnel were not always treated in Canadian medical units, that certain Canadian medical experts were used for Imperial work instead of purely for Canadian needs, and that certain Canadian medical units went to the Mediterranean. The cause of these criticisms was due to the fact that a Civilian had been made Director-General of the Canadian Military Medical Forces and he did not understand that the segregation of

Canadian wounded in Canadian medical units could not be carried out in an allied force, and that the medical personnel (especially at the front) must be pooled for the general good. Such segregation is impossible except when racial customs, manners and food are completely different in every way. Then it is necessary, but not otherwise.

The controversy ended and conditions at once became normal when a Military Medical Officer of experience replaced the Civilian doctor.

The discussion however did not entirely end until 1919, and even then an attempt was made to organize the Military Medical Services by a Board of Civil practitioners of "outstanding merit." As the author says, over the term outstanding merit there is a marked difference of opinion in the profession, and "one may have skill in opening a cavity or setting a bone and yet be quite incompetent in the wide field of human activity, known as war, that lies beyond his ken."

A Military Medical Director-General would have prevented unfit men being sent over, realising they are worse than useless, he would have welcomed the posting of special officers for imperial uses, and would have realised the impossibility of segregation. Time is lost by putting in a Civilian Director-General who has first to teach himself by experience what to do, and so needlessly delays the smooth running of the service. This experience the Canadian Military Medical Service went through, and successfully altered in time to prevent any failure occurring.

Chapter XVII deals with the reorganization of the Canadian Medical Services. It was found that mixed Boards composed of Civilians and Military Officers did not work well.

Orthopaedic Centres proved very useful. They have been found particularly valuable for fractured thighs. A useful description is given of the Ancillary Services in Chapter XIX, including Nursing Service, Dental Corps, Radiography, Mobile Laboratory, Sanitary Services, Naval Medical Services, Hospital Ships and Training Schools. Interesting statistics are given under "Mortality and Strength." These statistics prove that an efficient Medical Service lowers the proportion of diseases to wounds. The average proportion in former days was 14 to 1. In the South African War it was 17 to 1. In France with the Canadians it was nearer 3 to 1. This shows improved conditions for preventing

diseases. For instance enteric fever is to a large extent prevented by inoculation with T. A. B. Vaccine, tetanus by anti-tetanic serum, and trench feet by proper care of the feet, and dirt diseases by baths.

Shell Shock is considered to be due to the enlistment of men who possess an excessively emotional temperament and are unable to bear the strain and discomforts attendant on war. Once such facts are understood, and guarded against, the number of cases of disease is lessened, and so a large amount of wastage is avoided.

Whilst the Canadian Overseas Military Medical Services were being developed, a Military Medical Service was developed in Canada for the reception of the sick and wounded who returned from the front. In these Hospitals in Canada the average cost per head of patients was 2.18 dollars against an average of 3.12 dollars in Civil Hospitals. The diet cost 43 cents compared to the 77 cent. cost in Civil Hospitals. The Red Cross organization ably assisted the Medical Service supplying various articles for the comfort of the troops. It was found necessary to absorb this organization into the Medical Services. The reason once again was that separate organizations cannot be usefully run in war apart from the normal war organizations.

Demobilization was carried out satisfactorily thanks to the Military Hospitals already prepared in Canada. Medical Boards in England of soldiers being demobilized proved an arduous task, and 300 officers were employed on this duty. After the armistice 289,000 Medical Boards were written, making with former boards a total of 385,469.

By the new year of 1920 the treatment of all patients in England (except 27) came to an end.

The Canadian Medical Services were in the field for 4 years and carried out their work with complete success. The cause of their success is put down to the fact that the service had been created (in a small way) in peace by well trained Military Medical Officers who knew military medical work and who were imbued with a sense of loyalty and discipline, and, above all, the service had been incorporated into the British Army and was a partaker of its privileges. It had the equipment and organization of that army to rely on.

After reading this very instructive book we can but add that the record of the Canadian Medical Services in the Great War was a very admirable one. It reflects the greatest credit on all those officers, nurses and men who helped to build it up so successfully, and who administered it so worthily. Finally, a word of praise must be given to the printers for the excellent manner in which the volume has been brought out, and for the clearness of the type which makes the reading of this interesting history so easy.

"With Lawrence in Arabia." BY LOWELL THOMAS. (Published by Hutchinson & Co., London, at 21s.)

Colonel T. E. Lawrence's reputation for the good work he did in Arabia during the Great War will not be enhanced by this book.

The author's unbounded admiration for his hero has somewhat distorted his view of the campaign as a whole.

Thus—except on page 209 where he mentions a battalion of Gurkhas mounted on camels as accompanying Lawrence—no mention is made of the other Indian troops who rendered Lawrence such invaluable aid.

The book is not intended to be military history and, owing to the many historical and technical errors, cannot be considered a serious biography.

The book will not interest military students.

"Our future in the Air." BY BRIGADIER-GENERAL
P. R. C. GROVES. (Published by Hutchinson & Co.,
London, at 1s. 6d.).

We fear that "Our future in the Air" by Brigadier-General P. R. C. Groves will prove disappointing to the reader.

Newspaper articles rarely lend themselves to reproduction in book form without a large amount of revision and editing and the present volume is a confusion of "Letters to the Times," editorials reproducing in other words (as is the habit of editorials) the identical opinion expressed in the letters, articles from other papers, and "side track" controversies.

Moreover in "Letters to the Times" a certain vividness of language may be used to back up unsubstantial arguments, but exaggeration and unsubstantiated arguments are out of place in a work presumably designed to be of more than passing interest.

General Groves' point is that in 1922 when the articles were written the Government had showed no signs that they realised the danger of attack from the air (simultaneous attack "by thousands of aeroplanes" on all our large cities is the picture drawn by the author) and had taken no steps to assist civil aviation on which alone a satisfactory air defence could be built up. Though neither contention is true to-day General Groves was entitled to his opinion: unfortunately he chose to draw the attention of the public by a savage attack which gives the impression of personal animus not only on the Air Ministry as a whole but on various individuals in that Ministry.

The book is, as we have said, disappointing, but with the main contention that civil aviation must be the basis of air defence we are not disposed to quarrel. It is not a case of "every civil machine which carries a passenger being capable of carrying a bomb;" as service and civil types diverge this will be less and less true. But since a month's war wastage may represent 6 months' peace wastage with present types of machine it is impracticable to provide reserve machines in sufficient numbers for a great war—we must depend on rapid output by the trained hands of a strong industry to turn over from peace production to war types at the shortest notice.

"Wireless: Popular and Concise." BY LT.-COLONEL C. G. CHETWODE-CRAWLEY. (Published by Hutchinson & Co., London, at 1s. 6d.)

Though the first wireless message was transmitted across the Atlantic twenty-three years ago, to most of us "wireless" still remains a technical mystery.

In this small book the author describes in concise and non-technical language the development and working of wireless telegraphy, telephony and broadcasting.

The author first relates briefly the history of wireless, and goes on to explain, in language which the most non-scientific can understand, how messages are received and sent.

The chapters dealing with the Imperial Wireless Chain, and the possibilities of wireless telephony are of particular interest to the military reader.

In the last chapter the author compares the advantages of wireless with line communication.

When atmospherics and other difficulties have been overcome and directional wireless has been perfected we may expect a time when cables and to a great extent land lines will be things of the past.

"An Account of the Battle of Liao-Yang," with questions and 10 Maps for Examination purposes. BY MAJOR-GENERAL SIR W. D. BIRD, K.B.E., C.B., C.M.G., D.S.O. (Published by Gale and Polden, Ltd., 1925, London, at 3s. 6d.)

A book by such a well-known military student is bound to be of value and interest, especially when the author has had the advantage of a personal visit to the scene of the battle he describes.

"Military History" says the author "cannot be studied with advantage unless an attempt is made both to see the situation as it appeared to those who were in positions of responsibility and to endeavour to better their plans."

It is on these lines that the author has dealt with the campaign of Liao-Yang.

In the first chapters the author describes the varying situations that confronted the Russian Commander in August 1904 and the steps taken by him to meet them.

General Bird then goes on to relate the course of the battle from the Japanese point of view.

Throughout, he discusses the courses which might have been adopted by the opposing commanders and criticises their decisions in the light of our present F. S. R.

The scope of this book does not include a complete narrative of the events leading up to the battle of Liao-Yang, one of the most interesting periods of the Russo-Japanese war. To complete the story the military student is recommended to turn to Hamley's "Operations of War."

It covers, however, the special period laid down for the current promotion examinations and it is especially recommended to officers studying for these examinations.

The book is well supplied with outline maps showing the varying situations on both sides. It would have been of additional value if a general map showing the whole theatre of operations had been included.



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